

Evening the Waters: Building Hydrological Equity in Sicily

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Abstract

This thesis investigates water scarcity in Sicily as a condition produced not only by climate variability but by political, economic, and infrastructural inequities that govern access to the resource. Through fieldwork, policy analysis, and interdisciplinary research, it identifies the failure of centralized water systems—exacerbated by corruption, infrastructural neglect, and competing demands from agriculture and tourism—as the primary driver of hydrological injustice. In response, the project positions architecture as an active agent capable of synthesizing these forces into site-specific interventions, proposing decentralized, modular water systems integrated with rural tourism and agricultural practices. By grounding design in local conditions while drawing from global precedents, the thesis advances a framework through which architectural research produces actionable knowledge, enabling more equitable and self-sustaining relationships between land, water, and community.

Executive Summary

This thesis, *Evening the Waters: Building Hydrological Equity in Sicily*, examines water scarcity in Sicily as a condition shaped not only by climate change, but by the political, economic, and infrastructural systems that govern access to water. While the extreme drought of 2024 serves as a key moment of investigation, the research demonstrates that scarcity in the region is not simply the result of reduced rainfall or rising temperatures. Rather, it emerges from systemic failures in water management, inequitable allocation, and the prioritization of certain industries over others. Through a combination of fieldwork, policy analysis, and interdisciplinary research, the thesis reframes Sicily's water crisis as one of distribution and control rather than absolute shortage.

Observations conducted across the region reveal a landscape defined by contradiction. Periods of drought are followed by intense rainfall events, producing cycles of scarcity and excess that the existing infrastructure fails to manage, leading to disaster. Reservoirs fail to retain sufficient water during wet seasons, while prolonged heat and evapotranspiration deplete available resources in summer and contribute to desertification. These climatic patterns, intensified by global warming, place increasing strain on agricultural systems, urban supply networks, and ecological stability. While they factor into the issue, the thesis argues that these environmental pressures alone do not explain the severity of the crisis. Instead, intentional infrastructural degradation and governance failures play a decisive role in limiting access to water.

A critical finding of the research is the failure of Sicily's centralized water systems to deliver reliable supplies consistently. Significant volumes of water are lost through leakage due to aging pipes, poorly maintained reservoirs, and insufficient investment in infrastructure. These technical shortcomings are compounded by political corruption and financial mismanagement, often linked to organized crime networks that have historically exerted control over water distribution. Public funds

allocated for infrastructural improvements frequently fail to translate into tangible outcomes, resulting in systems that are both unreliable and inequitable. In this context, water becomes a resource distributed according to power and capital, rather than need.

The thesis further examines how competing demands from agriculture and tourism intensify these conditions. Agriculture remains a dominant land use and cultural practice in Sicily, requiring substantial water input during the dry summer months. At the same time, tourism has emerged as a major economic driver, introducing significant seasonal demand that coincides with periods of peak agricultural need. Hotels and resorts maintain water-intensive amenities such as pools, landscaping, and laundry operations, often relying on private vendors to ensure uninterrupted service. This dynamic produces a hierarchy of access in which tourism infrastructure, equipped with the financial upper hand, is consistently prioritized, while farmers and residents face rationing and uncertainty. The resulting imbalance highlights the role of economic power in shaping resource distribution.

In response to these conditions, the thesis proposes a shift away from centralized water systems toward decentralized, site-specific architectural interventions that enable resource autonomy. Rather than treating architecture as a passive reflection of broader forces, the project positions design as a means of engaging directly with complex systems and identifying points of intervention. This approach is grounded in a research-to-design methodology that integrates insights from hydrology, policy, economics, and local knowledge into spatial proposals. By synthesizing these domains, architecture becomes a tool for producing actionable knowledge and tangible change.

The design proposals focus on the adaptive reuse of disused rural structures, transforming them into nodes of water collection, storage, and redistribution. These interventions incorporate a range of strategies, including rainwater harvesting, fog and dew collection, greywater recycling, and modular storage systems. Each strategy is calibrated to the specific climatic and topographical conditions of its site, allowing for a high degree of responsiveness to local environments. Operating

at both building and territorial scales, these systems aim to reduce dependence on unreliable centralized infrastructure while enhancing resilience and autonomy within rural communities.

A key aspect of the thesis is the integration of tourism into these decentralized systems in a way that supports local economies rather than extracting from them. By embedding hospitality within agricultural contexts, the project proposes an alternative model of agritourism that aligns economic advancement with ecological stewardship. Shared spaces such as kitchens and bathrooms are designed to reduce resource consumption while fostering interaction between visitors and farm workers, encouraging a more conscious relationship to water and food systems. These spaces function as sites of exchange and education, where the processes of cultivation, preparation, and conservation become visible and participatory.

At the same time, the thesis critically addresses the risks associated with tourism-led development, particularly its tendency toward overconsumption and resource extraction. By linking water systems directly to agricultural production and local labor, the proposals seek to redistribute value and support greater economic independence for farming communities. This approach challenges dominant development models that prioritize external investment and short-term profit, instead advocating for systems rooted in local knowledge and long-term ecological balance.

While the research is grounded in the specific context of Sicily, its implications extend to drought-affected regions globally. Similar patterns of water scarcity, infrastructural failure, and tourism-driven demand are evident across the Mediterranean and beyond. The strategies developed in this thesis—particularly their emphasis on modularity, adaptability, and site-specific calibration—offer a framework that can be applied to other contexts facing comparable challenges. Rather than proposing universal solutions, the work demonstrates how deeply situated research can generate transferable design approaches.

Ultimately, this thesis argues for an expanded role of architecture in addressing climate and resource crises. By engaging with systems of water, land, and labor, architects can move beyond traditional project delivery models and contribute to broader processes of environmental and social transformation. Through the integration of research and design, architecture is positioned not only as a means of constructing buildings, but as a discipline capable of producing knowledge, revealing inequities, and proposing more responsible ways of inhabiting the world.

Preface

This thesis is executed alongside a one-semester Directed Research project, falling within School of Architecture Assistant Professor Nimet Anwar's DR section titled *Grounding*, which foregrounds the need for attention centered around the ground on which we transform and engage with in any architectural act. Struck with the drastic climate effects that Sicily's ground demonstrates through drought and tropical storms, the thesis traces water to identify how the ground has fallen victim to ecological disarray exacerbated by political manipulation. Research conducted for this thesis constitutes the polemic framework on which the Directed Research project builds itself upon, as the ambition of the Directed Research component is to imagine built alternatives that respond to a legacy of hydrological dispossession in Sicily. The purpose of this thesis paper is then to draw connections between policy, economics, infrastructure, and ecology in shaping the water issue through mapping, policy evaluation, and interviews with researchers and designers alike who carry experience working in the region. Upon submission of this thesis, design speculations for Directed Research are in progress. As the Directed Research component requires me to act as an architectural designer to produce tangible proposals, I mediate between journalistic research into existing frameworks and a future-oriented built imaginary, with aims to produce contextually sensitive yet imaginative design work. Stemming from this reciprocal approach between investigation and creation, the thesis develops a critical stance on the agency of architecture and design in intervening upon controversies entrenched within dynamics outside of our disciplinary reach.

Acknowledgements

Without the introduction that Izabela Moren and Fabrizio Furiassi made to the intricacies characteristic to Sicily through their Florence campus course, Architecture and the Environment, this thesis would not have been possible. I would like to thank both instructors for kickstarting my research trajectory into the dynamics of water access in the region, and I owe special thanks to Izabela Moren as my thesis reader for offering consistent feedback and guidance on research direction, methodology, and output, and connecting me to the insiders I interviewed. Her expertise has been critical to my approach and understanding of the region's interwoven forces. Alongside Moren and Furiassi, my Directed Research advisor, Nimet Anwar, has played a key role in focusing the research and pushing me to develop design proposals that respond coherently to the issues found. Also key to framing my design work appropriately within the region's social and political context of organized crime and migrant conditions was Rosita Palladino, who was more than willing to lend feedback and question my thinking early in the research process as someone native to a territory similarly affected by tourism, the Amalfi Coast.

I owe further insights to the time lended by designers and creatives Zeno Franchini, Francesco Bellina, Eliza Collin, Thom Bindels, and Hanna Rasper, all of whom I interviewed virtually prior to my most recent fieldwork trip. These figures either currently work or have worked extensively in the region, introducing critical context and working experience to this project. Through design reviews, the conceptual feedback of School of Architecture professors Mahwish Khalil, Sungwoo Jang, Tiffany Xu, Deo Daiparine, and Kyle Miller have led me to interrogate Sicily's water access questions with maximal architectural rigor in both conceptual processing and technical execution, most importantly the consideration of which parties would benefit from design interventions and consistently calibrating design decisions to consider affected groups.

The work presented in this thesis was also made possible by the developmental support of all previous instructors at the School of Architecture who have prepared me with the research and design skills, coupled with the intellectual confidence, to pursue this endeavor. Through intermittent feedback sessions, my peers have provided their own thoughts, allowing me to articulate my research and test my logic on a regular basis.

Finally, I would like to thank the spectacular region of Sicily—with its people, history, and landscapes—for serving as my subject of research in this project, allowing me to explore my curiosities surrounding access to essential resources through a multidisciplinary lens. While I see the territory as representative of drought-affected locations on the global scale, Sicily’s particularities posit the region as worthy of its own research project. Each attempt to answer one research question made me aware of how much there was left to learn, opening the door to infinite research in both breadth and depth. Each Sicilian I spoke with was patient with my Italian level and willing to share their local knowledge in addition to thoughts on rural futures that privilege access to water. The research would not be complete without boots-on-the-ground observation and inquiry into this land filled with peculiarities.



Figure 1: Viewing Enna landscape during site visit.
Photograph taken by author, March 9, 2026.

Advice to Future Honors Students

As you are undertaking smaller acts of research prior to the thesis year for your courses or extracurricular work, stay curious and pursue each assigned research topic with rigor and intensity, as one project may likely form the foundation of your thesis. If you are afforded with the opportunity to study abroad, approach the semester with an open mind and use it to identify topics that may be underrepresented in scholarship produced in the English language. Through research and production, build your own expertise by recognizing the knowledge you are missing, which can be supplemented by input from peers, instructors, and advisors, in addition to your own inquiry.



Figure 2: Desertification map of Sicily (pink).
Rendered drawing by author, January 13, 2026.

Introduction

While writing on the geography of Sicily, I avoid the label “island,” as it inaccurately diminishes the diversity and complexities of a territory the size of Massachusetts. Seven days spent over two brief fieldwork trips following months of research were not enough to scratch the surface of the region’s political, economic, and ecological entanglements. A successful conversation with an elderly farmer in rural Enna after four months of classroom Italian instruction came to my own surprise. At this point, I realized that my own unfamiliarity brings about rich opportunities to apply my lens of design and the built environment to ongoing issues of equity and justice regarding resource distribution. As I gathered this research on Sicily’s water crisis, it became obligatory to ask: what can architecture do about these problems?

Coupled with architecture, it became important to ask how Sicily’s people wish to address these problems as well. Readings, interviews, and my own experiences of travelling through Sicily revealed a paced resilience within much of the local population. Vulnerability to disastrous events—earthquakes, volcanic eruptions, drought—makes instability and precarity facts of everyday life. Sicilians build to rebuild, deprioritizing ambitions of permanence in favor of adaptability. Present throughout all of my conversations with designers, farmers, shop owners, and taxi drivers was both a steadfast passion for the land they call home and a sharp curiosity for everything outside of it. Prior to my fieldwork, I was warned against the fatalistic leanings of Sicilian thinking regarding the future and its discrepancy with American philosophies of short-term ambition and gratification. From my discussions with locals, however, I was greeted with an open receptiveness to fresh ideas coming from an outsider’s perspective. After all, Sicilians may be the best adapted to change, only at a different pace. Economic, demographic, and political shifts that impact the present day stretch back millennia, and the implementation of many adaptive outcomes spans lifetimes. The region has

experienced water scarcity in bouts since its occupation during the Phoenician era, and methods of recovery have never reached perfection to this day. In fact, notions of “perfection” and “efficiency,” sourced from an industrial Western frame of thinking, applies less as paradigm to the Sicilian endeavor. My inclusion of metrics such as liters of water collected per day serves mostly to discuss the feasibility of architectural implementation with outsider audiences.

As issues of ecology in Sicily are rarely fixed in a certain moment and often relate to other events cyclically, I aim to identify this cycle of drought and abundance in Chapter 1, pairing empirical observation with lived experience to describe the crisis at hand. In Chapter 2, I flesh out the political and economic influences that overtly factor into the irregularity of water access, illustrating the crisis as one of injustice and inequity, premising the need for systems independent of centralized networks. Chapter 3 accompanies the need for such systems with inquiries into the type and manner of intervention, which are to respond to declining rural populations through the repurposing of existing properties representative of the region’s diverse landscapes, outlined in Chapter 4. Chapter 5 contains an overarching review of existing water collection, storage, and distribution strategies and evaluates their cost and scale propriety to the proposed intervention types and sites. Chapter 6 introduces precise ways through which design can integrate innovative tourism models and modular water management systems into site specificity. I conclude by speculating on the scalability of these proposals, as water scarcity and privatization become increasingly pressing not only in Sicily, but throughout the Mediterranean and drought-affected geographies globally.

This method of design research illuminates ways through which architects and designers can actionably take part in climate and resource justice through built intervention. Sicily constitutes a serious case of resource dispossession through political, economic, and criminal dynamics that architecture is often seen as less capable of affecting in comparison to policy and law enforcement. Counter to this assumption, this thesis advocates for the capacity of architectural research to draw

connections between situations of need and forces across disparate disciplines, pinpointing precise locations within larger frameworks and narratives to enact meaningful change through architectural design. Research takes a wide approach through a variety of methodologies in order to understand how areas of policy, history, economics, climate sciences, engineering, and design can apprehend Sicily's current condition. From this comprehensive understanding, I identify the primary issue that calls for architectural intervention as the failure of centralized systems to deliver necessary amounts of water to end users predictably, resulting from an entanglement of Mafian power consolidation, corruption-led financial mismanagement, lack of infrastructural maintenance, and simultaneous pressures on water occurring at an industrial scale. After identifying this root cause, I strategically position architecture's response as the development of decentralized, self-sustaining water systems that support a collaborative model of agricultural and touristic activity. The proposal promotes local farmers' access to both a more stable water supply and additional means of income via a burgeoning tourism industry currently dominated by speculation led from outside the region. The integration of tourism into agriculture both educates outsiders on rural lifestyle practices and enables greater economic independence among local farming communities, suggesting the possibility of freedom from the dominant structures that weaponize precarity to consolidate power.

While scholarship exists on the role of climate change in extreme weather faced by the region, corruption and exploitation surrounding water access, and ideas of rural regeneration, little has been explored to address such situations in tandem. Although scholarly circles in architecture have speculated on tourism's expansion in rural Sicily, such proposals lack focus on the finite character of water and the sporadic nature of its access. Additionally, proposals that involve the integration of tourism into agricultural communities fail to address the extractive tendencies often involved with touristic operations. By examining the political and economic patterns endemic to unjust water access in the region alongside ways in which tourism can sustain long-term economic

and ecological well-being, this thesis aims to project equitable and autonomous futures for Sicily's farming communities.

The proposals set forth by this thesis arrive less as prescriptions but rather as speculative contributions to an ongoing conversation about land use, water, and tourism in Sicily. Instead of dictating how Sicilian communities should live, cultivate, or manage their resources, the provocations synthesize strategies from disparate geographies to engender novel architectural possibilities that can be applied to any location facing similar issues. This set of design tools promotes locally determined futures, remaining open to adaptation and reinterpretation by those whose lives are most directly engrained into the land. In this sense, the work of this thesis lies less in prescribing solutions than in demonstrating how architectural thinking can contribute to broader discussions of climate and resource justice.

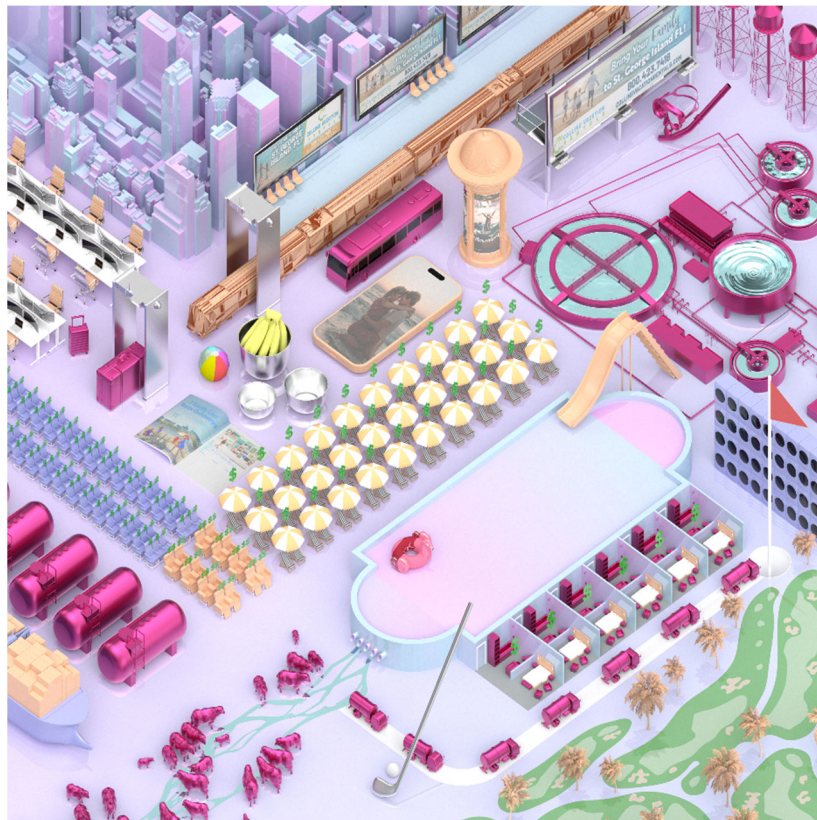


Figure 3: Escapist Fantasies; Extractive Realities.
Rendered drawing by author, January 13, 2026.

Chapter 1: Situation

865 kilometers of driving along Sicily's rugged coasts and hilly interiors revealed little evidence of drought. During my mid-March trip, I was greeted with views of rolling green pastures, babbling rivers, and even rain. The same wind that carried the sound of cowbells jingling sent rainclouds over the sites I visited, driving me to question the legitimacy of this thesis' premise on water scarcity. Closer observation, however, revealed the issue. Green hills were often interrupted by brown exposed wounds as landslides tore chunks out of earth that underwent drought. Despite the tranquil and moisture-abundant landscapes I encountered at first glance, the land, along with all that lives on it, suffered.



Figure 4: Abandoned sulfuric acid production site within green landscape showing evidence of landslides in the background. Photograph taken by author. March 11, 2026.

The severity of Sicily’s 2024 drought serves as the impetus for this body of research. Regional president Renato Schifani’s administration declared a state of natural disaster on February 9, citing jeopardy faced by the agricultural sector.¹ Although the national government published losses amounting to €1 billion in agricultural output, associational estimates reach up to €2.7 billion, representing over 40% of that year’s total output and over 1,150 farmers impacted.² As basins ran dry, a goat farmer in Caltanissetta reported the loss of a doe “as the mud dried in her stomach.”³ 19 out of 22 publicly-managed reservoirs observed water levels well below half of their authorized capacity, with a third reaching near or completely dry levels.⁴ Environmentalist association Legambiente declared the disappearance of Lago Pergusa, the region’s only naturally occurring lake, warning against disruptions to trans-Mediterranean bird migration.⁵

Implications stretched far beyond matters of agriculture and infrastructure, impacting municipalities and domestic use. Over 55,000 residents of the municipality of Agrigento observed 157 days of reduced public water supply and 208 days of full suspension.⁶ In fact, rationing practices were implemented in 93 of the region’s 391 municipalities, affecting 850,000 residents and nearly a fifth of the total population.⁷ 29% of Sicilian households reported irregularities in water supply,

¹ Regione Siciliana, “Siccità, dichiarato lo stato di calamità naturale su tutto il territorio siciliano,” Presidenza della Regione, February 9, 2024.

² CREA – Centro di Ricerca Politiche e Bioeconomia, *L’agricoltura in Sicilia in cifre 2024* (Rome: CREA, 2024).

³ Emma Bubola, “After Losing Crops to Drought, Sicily Fears Losing Tourism, Too,” *New York Times*, July 24, 2024.

⁴ Autorità di Bacino del Distretto Idrografico della Sicilia, *Volumi totali (al lordo di interrimenti e volumi indisponibili) presso i principali invasi siciliani: Anno idrologico ottobre 2025–settembre 2026 (aggiornamento al 01/01/2026)* (Palermo: Regione Siciliana – Presidenza, 2026).

⁵ Legambiente Sicilia, “Legambiente segnala la scomparsa del Lago di Pergusa (EN) e chiede l’avvio di urgenti interventi di monitoraggio e di ripristino come previsto dalla ‘Restoration Law,’” June 26, 2024.

⁶ Istituto Nazionale di Statistica (ISTAT), *Water Statistics: Years 2020–2024* (Rome: ISTAT, 2025), 8.

⁷ “Sicily declares state of emergency amid worst drought in almost 20 years,” *Euronews*, March 1, 2024.

trailing just behind Calabria as the second most volatile region in Italy.⁸ Bed and breakfast owners turned away reservations, fearing they would be unable to guarantee running water to guests⁹. As municipal networks—fed by groundwater and reservoir sources—became disrupted, residents turned to historic wells and watering holes to fill containers and buckets.

Among the culprits of the region’s 2024 ails was the compounding effect of record-low rainfall and rising temperatures observed with climate change. The Sicilian Agrometeorological Information Service (SIAS) recorded average rainfall between September and December of 2023 at 150mm, up to 95% less than figures between 2002 and 2022.¹⁰ These crucial rains typically nourish the ground, green the pastures, and fill the reservoirs in anticipation for summer dry seasons. Placing additional pressure on the low water supply are the drastic temperature effects that Sicily has observed through global warming. In August of 2021, the region recorded Europe’s highest-ever temperature at 48.8°C (119.8°F).¹¹ The summer of drought was characterized by heat waves in which temperatures reaching 42.5°C (108.5°F) persisted for days on end.¹² Not only did scorching heat evaporate what was left in Sicily’s emptying reservoirs, but it also contributed to evapotranspiration, extracting moisture from the ground and its vegetation that serves to protect it. In summer of 2024, the Standardised Precipitation Evapotranspiration Index (SPEI) reached below the “exceptional” level of drought, transforming Sicily’s rolling hills into a yellowed expanse.¹³

⁸ ISTAT, *Water Statistics: Years 2020–2024*, 9.

⁹ Lorenzo Tondo, “‘The water war’: how drought threatens survival of Sicily’s towns,” *The Guardian*, December 13, 2024.

¹⁰ Servizio Informativo Agrometeorologico Siciliano (SIAS), *Eccezionale siccità invernale in Sicilia*, Regione Siciliana, 2024.

¹¹ World Meteorological Organization, “WMO Confirms Verification of New Continental European Temperature Record,” January 30, 2024.

¹² “Registrati 42,5°C a Siracusa, il picco più alto di temperatura del mese di luglio 2024,” *Siracusa Press*, August 7, 2024.

¹³ Mariam Zachariah et al., *Climate Change Key Driver of Extreme Drought in Water-Scarce Sicily and Sardinia* (World Weather Attribution, 2024), 6.



Figure 5: Comparative satellite imagery of Lago di Pozzillo between May 2022 (left) and May 2024 (right). Imagery from Airbus via Google Earth, accessed January 30, 2026.

Looking ahead to the winter between 2025 and 2026, water is in perilous abundance. In late January, several days of intense rainfall subjected the town of Niscemi to a 2.5-mile-long landslide that evacuated 1,500 residents, garnering a visit from Italian prime minister Giorgia Meloni.¹⁴ Located in the drought-stricken Caltanissetta province, Niscemi's dried soil possessed optimal characteristics for increased pore-fluid pressure and lessened frictional resistance, giving way to this long expected disaster.¹⁵ The landslide represents one instance of a series of events brought about by a tropical storm dubbed "Cyclone Harry," which also incited flash flooding across the coasts of southern Italy and northeastern Spain. The storm arrives as the latest catastrophe in a recent onslaught of hurricane-like weather developing in the Mediterranean, meriting the term "medicane." Bringing about torrential downpours known as *bombe d'acqua*, these "medicanes" bring up to 310 mm of rainfall in only 48 hours.¹⁶ Climate change is leading not only to worsened drought, but also to

¹⁴ Presidenza del Consiglio dei Ministri, "Severe weather: President Meloni visits Sicily," January 28, 2026.

¹⁵ A.L. Handwerger, et al., "A Shift from Drought to Extreme Rainfall Drives a Stable Landslide to Catastrophic Failure," *Scientific Reports* 9, no. 1 (2019): 1569, doi.org/10.1038/s41598-018-38300-0, 1.

¹⁶ Zachariah et al., *Climate Change Key Driver of Extreme Drought*, 3.

storms of greater wind speeds, rainfall amounts, and destructive capacity.¹⁷ As exemplified by the Niscemi landslide, Sicilian land subjected to drought faces damage and loss not only in hot and dry summers but also increasingly stormy winters.



Figure 6: Fatos Bytyci, Drone view of houses perched along the edge of a cliff after a landslide in Niscemi, Sicily, January 30, 2026, *Reuters*, www.reuters.com/pictures/landslide-leaves-sicilian-town-teetering-cliff-edge-2026-01-30.

While the climate crisis brings about tropical storms and worsening drought, drought itself has long been known to the region. Due to its arid climate and geographical sensitivity to Mediterranean heat waves, the 2024 event only constitutes one instance of a series of extreme drought in the region beginning in 1988. Lasting until 1990, the 1988 drought was followed by similar events in 2002, 2007, 2012, 2017, and 2022.¹⁸ Trapani’s expansive salt pans, likely developed

¹⁷ Juan J. González-Alemán, et al., “Potential Increase in Hazard From Mediterranean Hurricane Activity With Global Warming,” *Geophysical Research Letters* 46, no. 3 (2019): 1762, doi.org/10.1029/2018GL081253.

¹⁸ Fondazione Utilitatis, *Blue Book 2023: I dati del servizio idrico integrato in Italia* (Rome: Utilitatis, 2023), fig. 1.8, “Percentuale del territorio italiano soggetto a condizioni di siccità estrema e sua tendenza dal 1952.”

first by the Phoenicians 3,000 years ago, point to a long-established history of aridity during which people have not only managed to survive dryness, but also use it to their benefit. The following chapter serves to illustrate that factors beyond meteorological cycles have contributed to scarcity, disadvantaging most—farmers, urban dwellers, and small business owners—while advantaging the political and corporate elite. As climate change incites extreme weather events of higher frequency and severity, access tactics must adapt volatile cycles of nature but also intentional dispossession.



Figure 7: Topographic model showing areas of desertification (pink), non-desertification (blue), and abandoned public building sites (pins). Model and photograph by author, February 20, 2026.

Chapter 2: Forces

Although the presence of seasonal rains often provides enough water to endure dry summers, a combination of factors linked to the Kingdom of Italy's annexation of Sicily, the Mafia's formation, and postwar economic development contribute to the crisis at hand. While water may be naturally present, access is restricted to a select few through corrupt political practices influenced by organized crime. A combination of infrastructural failures and overlapping demand from agriculture and tourism industries during peak seasons worsens the conditions of drought, which are exploited by political and business elite, in some cases related to the Mafia, for private gain.

Leaky Pipes; Leaky Budgets

Increasingly prominent throughout decades, large gaps between supplied water and billed volume in municipal systems point to infrastructural shortcomings that further disrupt access to the resource. Estimates of water used versus water supplied hover at around one half, with some claiming up to 80%.¹⁹ The 2020 ISTAT water use census reports this figure as 52.5%, 10.3% higher than the Italian average.²⁰ This percentage has nearly doubled since the 1980 census figure of 27%, still also representing greater waste than the country's average.²¹ In fact, in the year following the 2024 drought, the Italian Court of Auditors identified the "severity of deficiencies in planning and management activities" as the primary obstacle to water access, as climate change pressures in years

¹⁹ La Poderosa Doc, *Dry Sicily*, documentary film, Vimeo video, posted 2024, vimeo.com/1120780649.

²⁰ ISTAT, *Censimento delle acque per uso civile, industriale e irriguo: Tavole di dati (anno 2020)* (Excel spreadsheet, Rome: ISTAT, 2022), 14.

²¹ ISTAT, *Rilevazione statistica degli acquedotti e dell'approvvigionamento idrico in Italia*. (Rome: ISTAT, 1983).

prior should have prompted regional authorities to act in anticipation of disaster.²² As reported, many of the tanks, pipes, dams, and irrigation networks that supply farms, industrial operations, and cities have not received maintenance since their postwar construction through funds such as the *Cassa per il Mezzogiorno*. Negligence towards reservoir maintenance has led to excess sedimentation, reducing storage capacity and ability to manage floods in rainy season.²³ Low water levels in the Lago della Trinità reveal corroded pipes at its dam, demonstrating an aging infrastructural condition incapable of storing and delivering an already scarce resource to agricultural landowners and urban residents alike.²⁴

Over the past decades, climate change—whose assessment must nonetheless take into account the overall data on atmospheric precipitation, which has tended to remain stable over the long and discontinuous cycle of drought periods—should have prompted the Region to improve the management of water supply. Instead, quite the opposite has occurred: the system has become less secure, with a clear increase in planning and management deficiencies, identified since the year 2000 (the first declaration of a water emergency) and becoming progressively more problematic up to the most recent declaration of a regional state of emergency in May 2024.

Figure 8: Italian Court of Auditors report excerpt on water management in Sicily, translated by author. Corte dei Conti, Sezione di controllo per la Regione siciliana, *Bozza di referto sulla gestione dello stato di emergenza in relazione alla situazione di grave deficit idrico e alla criticità delle infrastrutture nel territorio della Regione siciliana* (Palermo, 2025), 13.

The severe lack of upkeep present in Sicily’s water infrastructure is owed largely to chronic financial mismanagement tied to political corruption and Mafia influence. Although the European Union and national government have administered significant funding to the region, minimal

²² Corte dei Conti, Sezione di controllo per la Regione Siciliana, *Bozza di referto sulla gestione dello stato di emergenza in relazione alla situazione di grave deficit idrico e alla criticità delle infrastrutture nel territorio della Regione Siciliana*, Deliberazione n. 213/2025/GEST (Palermo, August 7, 2025), 13.

²³ Zachariah et al., *Climate Change Key Driver of Extreme Drought*, 24.

²⁴ Gaël Branchereau, “In Drought-Hit Sicily, Rainwater Is Dumped in the Sea,” *Phys.org*, August 2024.

improvements have been observed. Distributed across 116 interventions representing five distinct funding programs, €804.1 million have been invested towards infrastructural improvements.²⁵ As of August 2025, only eight of these interventions have demonstrated complete construction status, totaling just €5.7 million.²⁶ While a significant portion of such activities report an “in-progress” status, there is little question among Sicilians as to where the funds are landing. In the early nineties, Italy’s *Mani Pulite* investigation into political corruption revealed a bribery framework plaguing public works, earning the name *Tangentopoli* for the kickback payments enacted by contracts.²⁷ Contracts leading to the construction of faulty infrastructures in Sicily have been under this scrutiny, namely the construction of the Ancipa Dam, whose material provenance and firm backgrounds have been under judicial investigation for Mafia ties.²⁸ In drought, cities reliant on water from the Ancipa Reservoir, such as Caltanissetta, have turned to private water vendors who utilize scarcity as an opportunity for gain. Relinquished to free market forces, water as a privatized commodity renders itself accessible only to those who can afford it. When drought occurs, access becomes limited and sporadic, pushing those who depend on water in large quantities to resort to private sources. This suggests that in the face of crisis, benefactors—in terms of water access and monetary profit—become reserved to a select few.

²⁵ Corte dei Conti, *Bozza di referto sulla gestione dello stato di emergenza in relazione alla situazione di grave deficit idrico*, 123. Of the five funding initiatives identified are the Piano Nazionale di Interventi Infrastrutturali e per La Sicurezza nel Settore Idrico, the Fondo per lo Sviluppo e la Coesione, the Piano Nazionale di Ripresa e Resilienza, the PON Infrastrutture e Reti, and the Fondo Progettazione.

²⁶ *Ibid.*, 123-5.

²⁷ Legambiente, *L’acqua negata* (Rome: Legambiente, 1997).

²⁸ Ilaria Giglioli and Erik Swyngedouw, “Let’s Drink to the Great Thirst! Water and the Politics of Fractured Techno-natures in Sicily,” *International Journal of Urban and Regional Research* 32, no. 2 (2008): 396, doi.org/10.1111/j.1468-2427.2008.00789.x.

Competition for Resources

With demand overlapping in the dry summer months, agriculture and tourism stand as the two industries central to Sicily's water debate, as their heavy and simultaneous consumption places pressure on an already short supply. While the sector's importance is shifting to give way to service-based industries, agriculture constitutes much of Sicily's land cover and regional identity, while also employing a higher portion of the population than the national average (7.6% compared to 3.4%).²⁹ Expanding at a rate of 50 hectares per year, 68.5% of the land is dedicated to livestock farming, crop cultivation, and specialized agriculture, representing also the majority of land vulnerable to desertification.³⁰ In 2022, it contributed €3.8 billion to the overall €96.9 billion region GDP, representing just 4.4% of its makeup.³¹ However, overall water use across irrigated and non-irrigated agriculture, in addition to livestock, amounted to 527.04 million cubic meters withdrawn per year, representing the largest sectoral withdrawal of water on an annual basis after municipal potable water.³² As the growing time for the sector's primary products—olives, citrus, wine grapes, and greenhouse vegetables—occur between May and September, the majority of withdrawals are made within this period, which coincides directly with peak tourist season. While employment in agriculture is declining as a result of rural emigration and machine advancement, its pressures on land and water are constant, if not growing, asserting its primacy as a practice to be considered for envisioning architectural intervention.

²⁹ Daniele Schilirò, "The Sicilian Economy: Its Competitiveness, Structural Composition, and Evolution" (MPRA Paper No. 124717, University of Messina, March 2025), 2.

³⁰ Zachariah et al., *Climate Change Key Driver of Extreme Drought in Water Scarce Sicily and Sardinia*, 25.

³¹ Banca d'Italia, *Economie regionali: L'economia della Sicilia* (Rome: Banca d'Italia, 2024), 77.

³² Regione Siciliana, Presidenza, Autorità di Bacino del Distretto Idrografico della Sicilia, *Piano di gestione del distretto idrografico della Sicilia (art. 117 del Decreto Legislativo 3 aprile 2006, n. 152), 3° ciclo di pianificazione (2021–2027): Analisi economica. Allegato 5* (Palermo: Regione Siciliana, 2021), 46.

Valore aggiunto per settore di attività economica e PIL nel 2022
(milioni di euro e valori percentuali)

SETTORI	Valori assoluti (1)	Quota % (1)	Variazione percentuale sull'anno precedente (2)			
			2019	2020	2021	2022
Agricoltura, silvicoltura e pesca	3.806	4,4	-0,7	-5,1	4,4	-3,7
Industria	13.439	15,4	-0,8	-11,9	22,9	0,6
Industria in senso stretto	8.955	10,3	0,2	-14,4	19,9	-2,0
Costruzioni	4.484	5,1	-2,7	-6,6	29,3	5,4
Servizi	70.111	80,3	0,1	-7,0	5,7	3,3
Commercio (3)	21.017	24,1	2,7	-14,7	14,3	6,7
Attività finanziarie e assicurative (4)	22.373	25,6	0,1	-1,6	2,0	1,7
Altre attività di servizi (5)	26.722	30,6	-1,8	-5,7	3,0	2,0
Totale valore aggiunto	87.356	100,0	0,0	-7,6	7,8	2,6
PIL	96.897	5,0	-0,1	-8,2	8,1	2,7
PIL pro capite	20.088	60,9	0,6	-7,5	8,6	2,9

Figure 9: Breakdown of sectoral contributions to the Sicilian 2022 GDP, listed by agriculture, industry, followed by services. *Valore aggiunto per settore di attività economica e PIL nel 2022 (milioni di euro e variazioni percentuali)*. From Banca d'Italia, *L'economia della Sicilia*, Economie regionali n. 19 (2024), Tavola a1.1. Data: ISTAT.

Although the square footage implications of touristic operations are marginal compared to those of agricultural land, their economic contribution and water consumption subject the sector to equal questioning. Thanks to its spectacular landscapes of coasts, mountains, and hills, coupled with a rich historical fabric and mild climate, the region has long been the target for hospitality speculation, proliferating in the postwar economic boom. In 2021, accommodation and dining establishments alone contributed €2.55 billion to the regional GDP, a number that excludes tourism's spillover contributions to transportation and consumer businesses.³³ Sicily makes up 13% of the country's tourism GDP, compared to an overall 4.6% share of the national GDP across all sectors.³⁴ In 2024, the region welcomed 7.04 million arrivals, both from within Italy and abroad, a number 40% higher than its own resident population just short of 5 million.³⁵ 22.4 overnight stays

³³ Banca d'Italia, *Economie regionali*, 79.

³⁴ Schilirò, "The Sicilian Economy," 3.

³⁵ Regione Siciliana, Dipartimento del Turismo, dello Sport e dello Spettacolo, Osservatorio Turistico e dello Sport, *Sicilia_Flussi 2023–2024* (Palermo: Regione Siciliana, 2025), Excel file, regione.sicilia.it/sites/default/files/2025-03/Sicilia_Flussi%20_2023-2024.xls.

were recorded, representing nearly a 10% increase since the previous year.³⁶ Proliferation of the region’s imagery across contemporary media—most notably through the selection of Taormina as the filming location for the hit HBO drama *White Lotus*’ second season—contributes further to the sector’s growth, evidenced by a 14.9% increase in international tourist presences between 2023 and 2024 compared to 4.3% domestic growth.³⁷



Figure 10: *Jennifer Coolidge and Haley Lu Richardson in The White Lotus (Season 2, Taormina)*. Photograph by Fabio Lovino for HBO, in “Where to Go in Sicily if You Liked* The White Lotus*,” *AFAR*, www.afar.com/magazine/where-to-go-in-sicily-if-you-liked-the-white-lotus.

While hospitality may currently trail behind agriculture in GDP contribution, the intensity and coincidental seasonality of water use with agriculture serves as additional pressure on a resource in high demand. Globally, hotels use an average of 1.5 cubic meters of water per room per day, with guests consuming up to eight times more water per person than their local counterparts.³⁸ Additional

³⁶ Ibid.

³⁷ Ibid.

³⁸ International Tourism Partnership, *Water Stewardship for Hotel Companies* (London: International Tourism Partnership, 2018), 8, sustainablehospitalityalliance.org/wp-content/uploads/2020/06/Water-Stewardship-for-Hotel-Companies-2018.pdf.

to plumbing for sinks, toilets, bidets, and showers within the guest accommodation are other exhaustive features of landscaping, swimming pools, laundry, and dining operations. Guest expectations of a constant water supply force lodging owners to rely on private vendors in times of rationing or suspension, a phenomenon not unique to Sicily alone. Coinciding with the hottest months of the year during which crops demand more water, peak tourism season occurs in July and August, leading to a conflict over resources in which tourism evidently prevails. While fields remained yieldless and livestock perished in 2024, swimming pools were full, and golf courses remained green. This held true especially for large operations managed by entities outside of the island such as the Paris-based Club Med and the Marriott-backed Mangia's owned by Aeroviaggi, illustrating the influence of capital in crisis contrasted against the closures of local bed and breakfasts. As water tends to travel with money, it becomes necessary to investigate the frameworks that privilege lending access to some while denying it to others.



Figure 11: Swimming pools and coastal terraces forming the property identity at *Mangia's Brucoli, Sicily, Autograph Collection*, Brucoli, Sicily, Italy. Marketing images from Mangia's official website, brucoli.mangias.com.

Mafia: The Puppeteer

As a primary benefactor of water's privatization and its profit during drought, the Sicilian Mafia's deep-rooted control over the resource as a form of power consolidation becomes critical to the discussion of access. The Mafia's monopolistic ambitions tie back to its inception in the nineteenth century, when the unification of Italy brought about the end of existing feudal land organization, leading to waning landowner-peasant relationships and power vacuums, fueled farther by distrust of a central Italian authority.³⁹ As large-scale citrus cultivation proliferated in the *Conca D'Oro* and Catania Plain in the latter half of the century, the Mafia's infiltration of centralized irrigation granted it control over agricultural land and the people who inhabit it, evidenced by the first documented Mafia murders surrounding conflicts over a water source in the village of Monreale in the *Conca D'Oro* in 1874.⁴⁰ Construction of new irrigation networks in attempts of agricultural modernization in the twentieth century was not spared from Mafia intervention, as leading figures of the *Consorzi di Bonifica*, the provincial authorities responsible for the promotion of such projects, represented the interests of organized crime.⁴¹

Beyond agricultural use, Mafian control over interior farmland implicated municipal supply, especially for coastal cities whose land was only suitable for digging wells containing unpotable, brackish water. Postwar national funding through the *Cassa per il Mezzogiorno* provided the Mafia with infrastructural advantages, allowing clans such as the Greco family to dig inland wells that provided fresh groundwater to cities such as Palermo, who signed contracts with clans including Greco to secure one third of its own supply.⁴² Administered to specific public construction works, the *Cassa*

³⁹ Giglioli and Swyngedouw, "Let's Drink to the Great Thirst," 396.

⁴⁰ Umberto Santino, "Il ruolo della mafia nel saccheggio del territorio," *Città d'Utopia*, no. 11 (1994).

⁴¹ Antonio Massarutto, "Il settore idrico in Italia," in *Acqua e sviluppo: Una politica delle risorse idriche per il futuro del Mediterraneo*, ed. Emanuele Ferragina (Bologna: Il Mulino, 2003).

⁴² Alexander Stille, *Excellent Cadavers: The Mafia and the Death of the First Italian Republic* (London: Vintage, 1996).

per il Mezzogiorno served as a significant source for direct capital infusion, contributing revenue through the manipulation of public tender processes by tendering through Mafia-owned firms or firms that represent Mafia interests.⁴³ This is exemplified by the Ancipa Dam’s operational shortcomings, as capital was likely diverted through Mafia-related construction entities, as well as the subsequent turn of municipalities to private suppliers.

Evidenced by the massive financial benefit through private intervention, the Sicilian Mafia exploits disaster to profit, mobilizing loss and urgency. Through political rhetoric illustrating disaster, Mafia-like funding tactics extend beyond benefiting from existing conditions of drought, misrepresenting the situation to speculate opportunity. This held true in the 2002 drought when political posters and advertisements representing the regional administration depicted water access as a difficult victory, despite the presence of winter rain. “The mobilized imaginary of Sicilian nature as arid and menacing” served to appease locals and gain political popularity while also appealing to the developmental equality ethos of EU Agenda 2000 funding programs.⁴⁴ Inciting disaster to secure external funding is not unique to drought, as observed through the wildfires intentionally set across Sicily and Calabria in 2021 and 2023, which have been tied explicitly to the Mafia.⁴⁵ As such, undertaking infrastructural work that supposedly ameliorates drought’s effects is fueled much less by real demand from agriculture, municipalities, and industry than it is to attract funding from central sources. Today, the many unfinished and underperforming public works projects around Sicily sit as cover-ups for corruption and money laundering, attracting funds from Rome and putting them in the pockets of Mafia-related political and business elite.

⁴³ Umberto Santino, “L’acqua rubata: dalla mafia alle multinazionali” (2001), republished by ATTAC Italia, June 9, 2003, attac-italia.org/l-acqua-rubata-dalla-mafia-alle-multinazionali.

⁴⁴ Giglioli and Swyngedouw, “Let’s Drink to the Great Thirst,” 407.

⁴⁵ Lauren R. Pearson, “Land on Fire: The Spatial Production of the Mafia,” *Criminology & Criminal Justice* (2024).

Chapter 3: Considerations

Beyond the intentional dispossession of water for capital and political gain, other charged social and economic factors relevant to the Sicilian context contribute to programmatic considerations that would empower water-centered architectural intervention to improve the livelihoods of those disenfranchised. Brokers in the domains of politics and organized crime actively subjugate everyday urban dwellers, farm owners, and agricultural workers by manipulating access to water, suggesting that these groups stand to benefit. In positioning agriculture as a deprioritized sector while recognizing the economic benefits of tourism, this project necessitates discussion of the realities of rural emigration, the advent of agritourism, and conditions faced by migrant workers, who constitute a large portion of the region's agricultural labor force, to set forth sensible programmatic proposals that lend autonomy to marginalized groups.

Rural Futures

In devising decentralized water management systems to address agriculture's intensive pressures on the resource, it is important to consider the rural contexts in which production is situated. In recent years, the fate of the countryside has received significant attention from policymakers and designers alike with aims of demographic revival through economic stimulus, including the famed headlines reporting on the one-euro sale of Sicilian homes. Established in 2013, the National Strategy for Internal Areas (SNAI) designated eleven *aree interne* within the Sicilian territory, covering 40% of the land and encompassing a population of over 650,000.⁴⁶ Over half of

⁴⁶ Regione Siciliana, "Aree interne, dalla Regione 37 milioni per il ripopolamento," December 6, 2025, www.regione.sicilia.it/la-regione-informa/aree-interne-regione-37-milioni-ripopolamento.

the total population resides outside of Palermo and Catania, Sicily's two largest cities.⁴⁷ Since 2013, this population has declined from 5.1 million to under 4.8 million in 2024, representing a steady annual depopulation rate of 0.6%.⁴⁸ For the South in general, the Association for the Development of Industry in the Mezzogiorno (SVIMEZ) projects a decrease of 8 million by 2080, halving a population that is not only diminishing, but also aging.⁴⁹

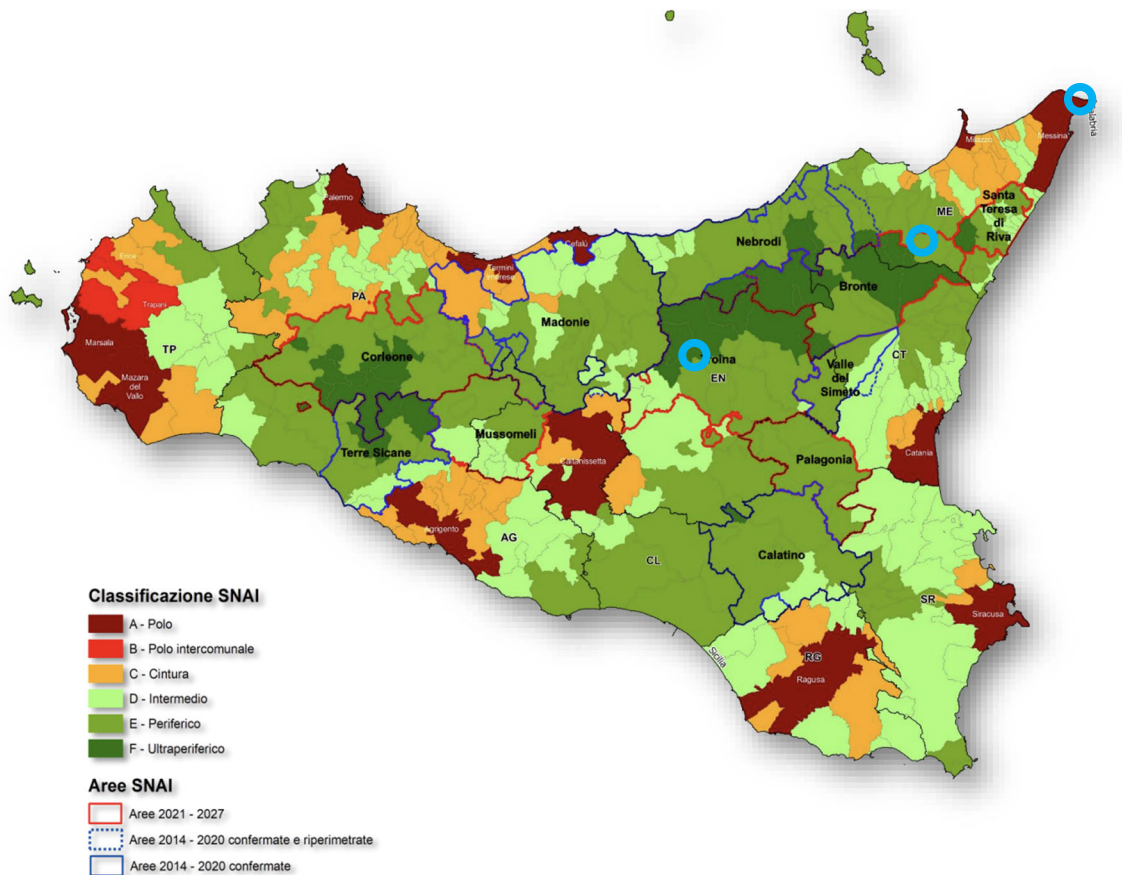


Figure 12: SNAI Classification map with most rural municipalities in green. Selected sites for architectural intervention are circled in blue. *Mappa delle Aree Interne, Sicilia, Programmazione 2021–2027*. Source: Dipartimento per le Politiche di Coesione and Formez PA, *Sicilia: Dossier regionale. Strategia Nazionale per le Aree Interne (SNAI), Programmazione 2021–2027* (Rome: Presidenza del Consiglio dei Ministri, 2022), 5. Data: Istituto Nazionale di Statistica (ISTAT).

⁴⁷ ISTAT. *Il Censimento permanente della popolazione in Sicilia: Anno 2023*. Rome: ISTAT, 2025, 1.

⁴⁸ *Ibid.*, 3.

⁴⁹ Antonio Frascilla, “Il Sud si sta spopolando: oltre un milione in fuga negli ultimi 20 anni,” SVIMEZ, January 17, 2024, www.svimez.it/il-sud-si-sta-spopolando-oltre-un-milione-in-fuga-negli-ultimi-20-anni.

Such figures represent a trend ongoing since the Second World War, in which improved economic opportunities in urban areas, particularly in the North, catalyzed emigration. Coupled with youth emigration for employment and low birth rates, lack of access to public services such as healthcare, transportation, and formal education has contributed to the issue today.⁵⁰ Initiatives such as SNAI channel national funds into these areas for economic stimulus and relief, most recently with a €37.2 million injection into Sicily for small business microloans, youth and family engagement initiatives, and migrant family integration.⁵¹ In the face of depopulation, many *aree interne* are pursuing place-based rebranding, promoting unique local identities that “leverage relevant enabling contextual conditions” such as “quality of life, architectural, and natural quality” to attract visitors and new residents alike.⁵² In promoting both rural tourism and affordable home ownership through the support of national initiatives, Sicily’s interior towns present a readiness to adopt economic practices additional to agriculture which require imaginative architectural production.

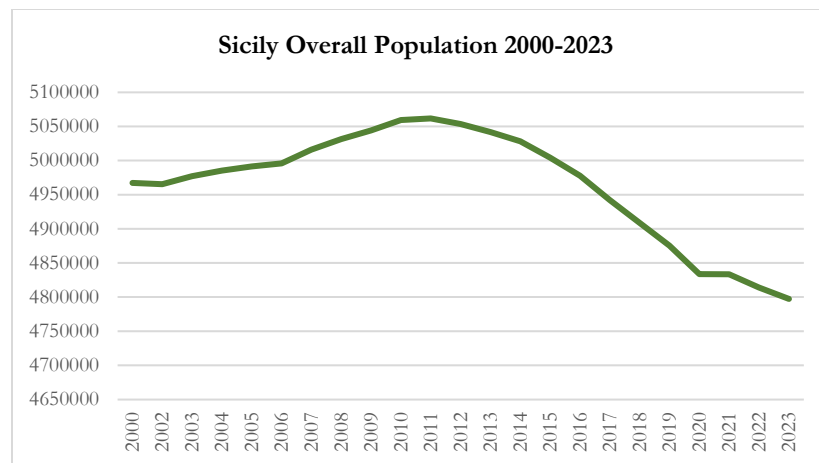


Figure 13: Population change in Sicily, 2000–2023. Author’s chart based on regional demographic balance data from Eurostat, *Population change – Demographic balance and crude rates at regional level (NUTS 3)* (dataset: demo_r_gind3).

⁵⁰ Maria Gabriella Campolo, Antonia Cava, Massimo Mucciardi, and Debora Maria Pizzimenti, “Between Staying and Leaving: Understanding Depopulation in Sicily’s Inner Areas,” *Cities* 169 (2026): Article 106567, doi.org/10.1016/j.cities.2025.106567.

⁵¹ Regione Siciliana, “Aree interne, 37 milioni per il ripopolamento.”

⁵² Barbara Lino, et al., “Re-Inhabiting Inner Areas Triggering New Regeneration Trajectories: The Case Study of Sicani in Sicily,” *Sustainability* 14, no. 2 (2022): 976, doi.org/10.3390/su14020976.

Growing Crops; Growing Industry

A \$61 billion industry globally, agritourism stands at the intersection between agricultural cultivation and tourism, positioning itself as the logical next step for economic diversification. Italy as a whole has experienced steady expansion in new businesses related to agritourism, with Sicily in particular witnessing the highest growth rate of 8.9% between 2024 and 2023.⁵³ In the same year, the sector has also witnessed 3.3% growth in economic value.⁵⁴ Driven by the country's culinary reputation, Italian farms welcomed an average revenue of €1,733 in 2022, nearly €1,000 higher than the EU average.⁵⁵ These businesses offer not only accommodation, tastings, and catering services, but also recreational and educational components such as horseback riding, nature excursions, and cooking classes. All these activities are complementary to existing agricultural production and rural settings, offering plausible transitions for farmers looking to diversify their incomes in the face of drought-impacted yield or EU Common Agricultural Policy-restricted surplus.



Figure 14: Agritourism farms in Italy, 2017. Infographic by Istituto Nazionale di Statistica (ISTAT), accompanying “Agritourism Farms in Italy,” September 26, 2018, www.istat.it/en/press-release/agritourism-farms-in-italy-year-2017.

⁵³ ISTAT, “Le aziende agrituristiche in Italia – Anno 2024,” press release, March 9, 2026, www.istat.it/comunicato-stampa/le-aziende-agrituristiche-in-italia-anno-2024.

⁵⁴ Ibid.

⁵⁵ Anna Jęczmyk and Roma Ryś-Jurek, “Comparative Analysis of Official Revenues from Agritourism in Italy and Poland,” *European Research Studies Journal* 27, no. 3 (2024): 580.

While offering hospitality and accommodation on existing farming properties is effective in generating additional income, the design proposals set forth call for a far-reaching restructuring of existing agritourism models, which privilege optics over genuine engagement with agricultural practices. In evaluating the larger ecotourism trend that encompasses agritourism, political ecology scholar Rosaleen Duffy warns against inauthentic intentions and exploitative patterns that tie such businesses to traditional, consumption-based tourism. Interviews with tourists in Belize revealed that “they are primarily concerned about the ways in which their holidays affect them as individuals,” including personal engagement with natural landscapes through excursion activities and demonstrating greater morality and cultural awareness to peers back home.⁵⁶ Long-established conceptions of the Mezzogiorno as underdeveloped, rustic, and untouched have set its landscapes up well for image-based consumption, subjecting tourists visiting the region to the same faults. In most cases of foreign ownership, managerial positions are reserved for high-skilled individuals sourced from abroad, leaving jobs exposed to lower wages and seasonal volatility to local populations.⁵⁷ Along the vein of superficial engagement, some agritourism owners prefer that guests avoid partaking in everyday farming labor, fearing that lack of proper education and training will lead to mistakes that may impact operations and bring liability upon the owner.⁵⁸ Additionally, harvesting practices that span over weeks and sometimes months far exceed the average agritourist stay—identified as 3.59 nights for domestic visitors and 5.96 nights for those coming from abroad—further preventing hands-on engagement and education opportunities.⁵⁹

⁵⁶ Rosaleen Duffy, “Misery, Self-Indulgence, and Self-Denial,” in *A Trip Too Far: Ecotourism, Politics and Exploitation* (London: Earthscan, 2002), 21.

⁵⁷ *Ibid.*, 5.

⁵⁸ Francesco Grassi, owner of Anonima Agricola agritourism bed-and-breakfast, interview by author, Ortobello, October 13, 2024.

⁵⁹ ISTAT, *Movimento dei clienti negli esercizi ricettivi*, calculations based on arrivals and presences data, 2005–2010.

While dominant models of agritourism are complicit in extractive practices and image-based consumption, successful initiatives in Sicily demonstrate promising departures from the norm. Located in the province of Palermo, the Valdibella agricultural cooperative advocates for greater consciousness of food production practices through its “Practical School of Agro-ecology,” offering both one-day focus trainings on specific processes and overnight stays for a “three-day basic agroecology conversion course” that provides the framework for piloting learned practices on new farms.⁶⁰ The Scotland-based civil society group Gaia Education has partnered with the local initiative Sicilia Intgra in providing project-based agricultural learning programs, many of which are catered to migrant youth and women, for purposes of integration in the local economy.⁶¹ Such initiatives inspire the next generation of agritourism that this thesis sets out to develop—a model that is not only resource-conscious, but also meaningfully engaged with existing labor practices and beneficial to the people that already own and work the land.



Figure 15: Weekend olive pruning course poster. Valdibella, “Corso di potatura dell’olivo,” accessed March 5, 2026, valdibella.com/category/eventi.

⁶⁰ Valdibella Redazione, “Ecco il calendario annuale della nuova Scuola,” Valdibella, published November 2, 2021.

⁶¹ “Sicilia Intgra – Design for Sustainability and Organic Food Systems,” *Gaia Education Blog*, May 27, 2016, gaiaeducationblog.wordpress.com.

Migrant Realities

Designing for those who work farmland necessitates the consideration of Sicily's migrant and refugee influxes, who constitute a significant portion of the agricultural labor force. While the figure fluctuates, an estimated 14,000 of the 47,000-person agricultural worker population in the region is foreign, representing origins of South Asia, the Middle East, as well as North and West Africa.⁶² Labor in the region's east is also composed of Eastern European migrants who are subject to exploitation regardless of their EU membership. Arriving to the region as the destination point of a perilous journey across the Mediterranean, extra-EU asylum seekers are held in *centri di accoglienza* to wait through an application processing period of up to 12 months.⁶³ Located on Sicily's satellite island of Lampedusa, known commonly as the "Gateway to Europe," the *Contrada Imbriacola* reception center records daily arrivals exceeding 1000, with 45,997 total arrivals in 2024 representing 68% of the country's arrivals by sea.⁶⁴ Among other policies, the EU's Dublin Regulation restricts mobility to other European countries for those who seek it by placing processing responsibilities on the accepting country, leaving many to pursue livelihoods in the Italian south without legal residence nor work authorization.⁶⁵ As they wait through lengthy processing periods, migrants become vulnerable to the exploitative labor practices and poor living conditions endemic to the region.

⁶² Business & Human Rights Resource Centre, "Italy: 62,000 Undocumented Farmworkers at Risk of 'Widespread Labour Exploitation' on Sicily, Finds Migrants' Rights Campaign Platform," *Business & Human Rights Resource Centre*, November 25, 2024.

⁶³ Italy, *Decreto legislativo 18 agosto 2015, n. 142*, art. 6, comma 8, in *Normattiva*, www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2015;142.

⁶⁴ United Nations High Commissioner for Refugees (UNHCR), *Italy Sea Arrivals Dashboard – December 2024*, published April 11, 2025, data.unhcr.org/en/situations/mediterranean.

⁶⁵ European Union, *Regulation (EU) No. 604/2013 of the European Parliament and of the Council of 26 June 2013 establishing the criteria and mechanisms for determining the Member State responsible for examining an application for international protection*, OJ L 180/31 (June 29, 2013), eur-lex.europa.eu/eli/reg/2013/604/oj/eng.

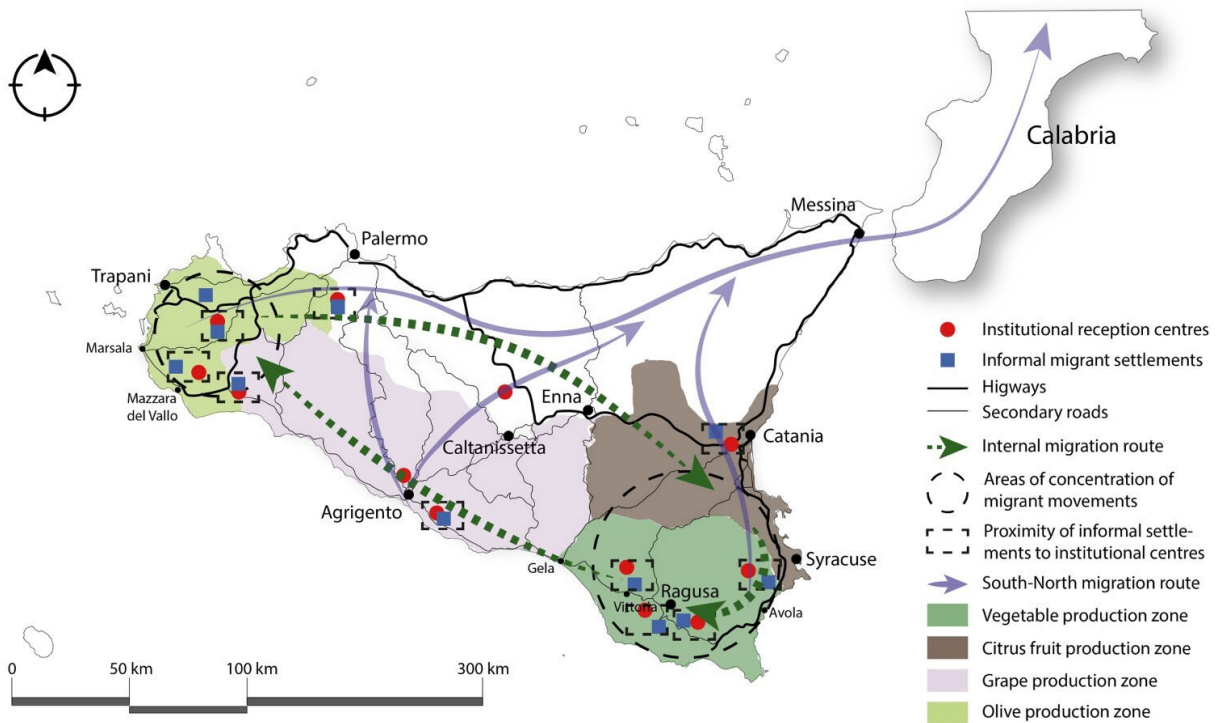


Figure 16: Map of Sicilian agricultural production areas, informal migrant settlements localization, and local migration routes. From Vincenzo Todaro and Salvatore Siringo, “On the ‘Rules’ of Informality: Investigating the Localization Criteria of Informal Migrant Settlements in the Southern Italy’s Rural Contexts,” *International Planning Studies* 30, no. 3 (2025): 359–82, doi.org/10.1080/13563475.2025.2459879.

The agricultural sector’s dependence on migrant labor for manually intensive tasks such as pruning complements migrants’ dependence on the sector as a readily accessible means of income provided under the table. This interdependent relationship produces forced and bonded labor circumstances that an illegal recruitment system known as *caporalato* is responsible for. Dubbed the “agromafia,” the *caporalato* system’s functions extend beyond finding labor for farm owners, as migrants are “forced to rely on and pay recruiters for basic services such as food, housing, and transportation.”⁶⁶ Basic necessities including water are withheld, creating a condition likened to modern-day slavery in which migrants are denied humane living conditions. With a regional

⁶⁶ Nasibul Hoque, “Trapped by Italy’s Policy Paradox: Asylum Seekers and Migrant Farmworker Exploitation,” Migration Policy Institute, August 21, 2024, www.migrationpolicy.org/article/italy-migrant-farmworker-exploitation.

inspector force totaling only 49 officials, these systems are left unchecked and proliferous, employing an unstable yet wide-reaching workforce of nearly 400,000 across Italy, 80% of which are migrants.⁶⁷ The Migration Policy Institute states that foreign workers employed through *caporalato* are paid at half the their counterparts employed through standard contracts, with wages dipping as low as €2 per hour compared to a €7.50 legal minimum wage.⁶⁸

In attempts to avoid the risks of homelessness and questioning from officials common in urban centers, migrants who seek to secure shelter outside of *caporali* recruiters have turned to the construction of informal settlements. Suiting all definitions of a shantytown, these settlements lack access to electricity and running water, exposing them to government condemnation and risk of demolition and destruction. This evidenced by a partial demolition of the Campobello di Mazara settlement carried out by Trapani authorities in May of 2018 and a subsequent fire in September of 2021 that killed a young migrant by the name of Omar Baldeh.⁶⁹ Coupled with exploitation through *caporalato*, the relegation of migrant workers to such living conditions demonstrates a social foundation of institutional and violent racism that represents hostile attitudes from a right-wing government, both at the national and regional levels, as well as its supporters. While it stands as a unique and fleeting case of migrant accommodation, left-leaning leadership alongside progressive social welfare movements in the Calabrian towns of Riace and Camini produced promising prospects of foreigners bringing new life into dying towns.⁷⁰ In imagining new models of agritourism, this thesis calls for the residential integration of migrant workers—without hierarchy

⁶⁷ InfoMigrants, “Almost 62,000 Workers Undocumented on Farms in Sicily,” November 25, 2024, www.infomigrants.net/en/post/61358/almost-62000-workers-undocumented-on-farms-in-sicily.

⁶⁸ Nasibul Hoque, “Trapped by Italy’s Policy Paradox.”

⁶⁹ Lorenzo Tondo, “The Exploitation of African Migrant Workers in Sicily’s Fields,” *The Guardian*, May 4, 2018, www.theguardian.com/global-development/2018/may/04/exploitation-african-migrant-workers-sicily-campobello-di-mazara.

⁷⁰ Niklas Maak, “Eurodrive: Repopulation Utopia,” in *Countryside, A Report*, ed. OMA and Rem Koolhaas (Cologne: Taschen, 2020), 20–61.

between landowner, migrant worker, and agritourist—as a means of rural revival, engaged agritourism, and humanitarian optimism. Living quarters and collective gathering spaces should accommodate stays of up to one year and remain flexible to both agritourist stays and longer occupation from migrants bringing varying family arrangements.



Figure 17: What remains of a settlement for seasonal agricultural workers in Campobello di Mazara, Sicily, where approximately 1,300 migrant laborers lived between October and December. Photograph by Francesco Bellina, in *The Guardian*, May 4, 2018. www.theguardian.com/global-development/2018/may/04/exploitation-african-migrant-workers-sicily-campobello-di-mazara.

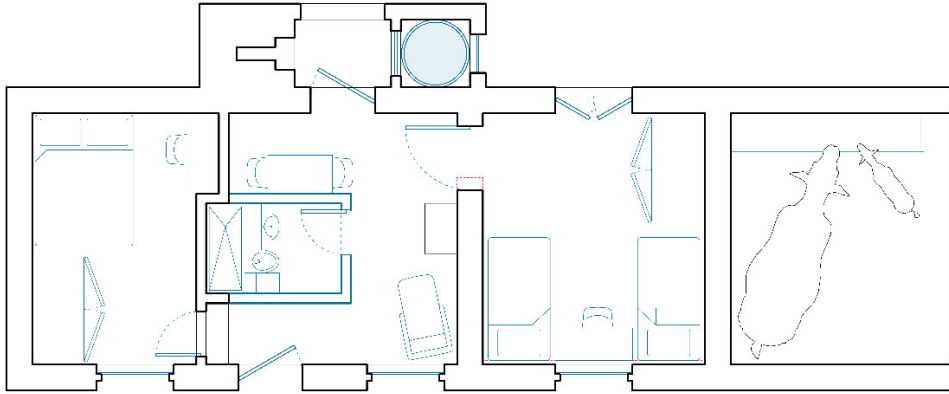


Figure 18: Intervention floor plan of Borgo Morfia accommodation unit, encouraging sharing and flexibility. Drawing by author, March 31, 2026.

Chapter 4: Framework

Three sites across Sicily are chosen to deploy water-conscious agritourism prototypes, each representing a unique subclimate and terrain condition. In developing design proposals across these sites, modular systems adaptable to disparate climatic conditions and geographies can be discovered. The region itself possesses characteristics of four Mediterranean subclimate.⁷¹ The drier MST2 (Mediterranean to subtropical climate, partly semiarid) forms the majority of the region with M4 (Mediterranean sub-continental to Mediterranean continental climate partly semiarid to arid) occupying hilly interiors. Wetter climates concentrate themselves around topographic events in the northern portions, with MST1 (Mediterranean to subtropical climate influenced by mountains) occupying the Peloritani, northern Nebrodi ranges, and formations southwest of Palermo, while M2 (Mediterranean sub-oceanic climate influenced by mountains) occupies the southern half of the Madonie and Nebrodi, as well as Etna. The three sites selected represent M4, MST1, and an urban coastal condition near the region's northeasternmost point, Capo Peloro. Below are their landscape, construction, and historical specificities as they relate to conversion into agritourist sites.

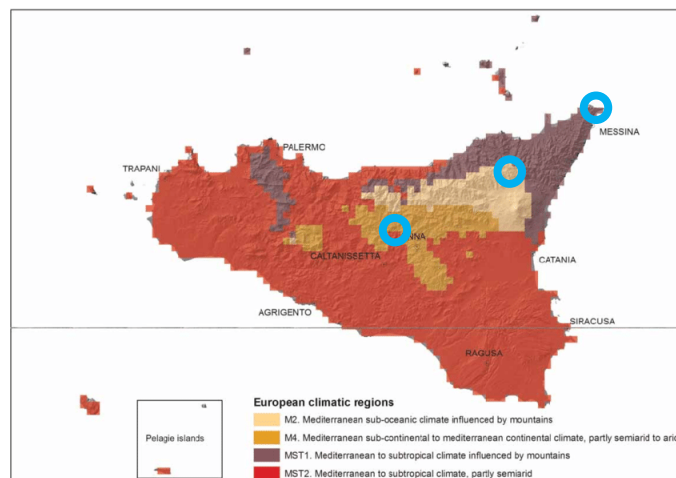


Figure 19: Climatic regions of Sicily. Selected sites for architectural intervention are circled in blue. Source: “Soil Erosion Risk, Sicilian Region,” *Journal of Maps* 11, no. 2, doi:10.1080/17445647.2014.956349.

⁷¹ M. Fantappiè, S. Priori, and E. A. C. Costantini, “Soil Erosion Risk, Sicilian Region,” *Journal of Maps* 11, no. 2 (2015): 2–3, doi.org/10.1080/17445647.2014.956349.

Borgo Morfia



Figure 20: Satellite image of Borgo Morfia. Source: Airbus via Google Earth.

As one of the Schisina villages built during Sicily's agricultural reform of the 1950s, the Borgo Morfia sits high on a portion of the Peloritani facing Etna at an elevation of 980 meters above sea level. Located in the province of Messina, this site is situated in MST1, thus less vulnerable to desertification yet carries opportunity for conversion given its sloped terrain, touristic potential, and existing agricultural activity. The complex consists of 27 identical residential units (1), a church and sacristy (2), a school with teacher's quarters (3), and remnants of terraced agricultural activity to the buildings' east (4) (Figure 21). Each residential unit is complete with a common room inclusive of a furnace (1), a separate bedroom (2), an outdoor oven and outhouse (3), a shelter for livestock (4), covered shelter for storage (5), and a livestock pen to the rear of the unit (6) (Figure 22). Structurally, the units are composed of a mortared stone foundation, with a reinforced concrete and masonry superstructure that remain largely intact (Figures 23 and 24). Interior ceramic finishes remain in limited portions. Insufficient sizes of the residences and a lack of running water and

electricity led to the site's abandonment beginning in 1960.⁷² Today, it is part of private agricultural land, and free-range cows use the structures as informal shelter.

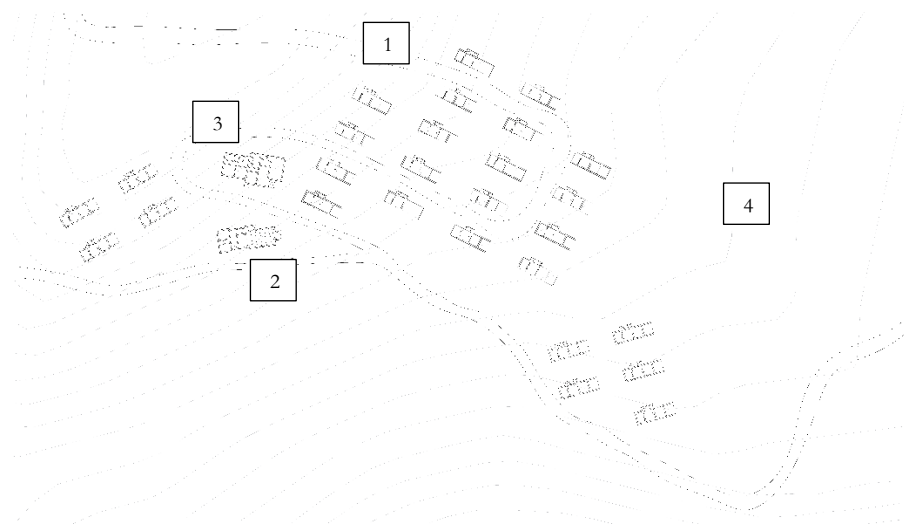


Figure 21: Borgo Morfia site plan: Drawing by author, March 31, 2026.

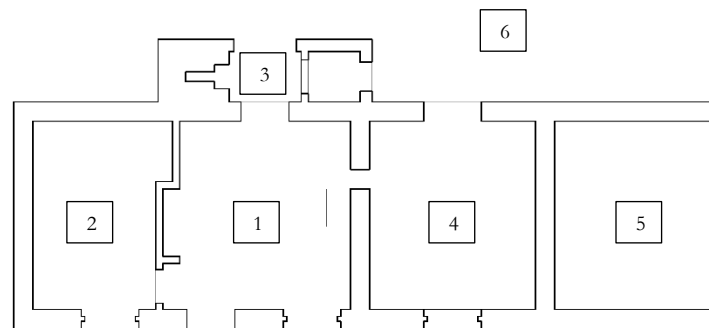


Figure 22: Residential unit plan. Drawing by author, March 31, 2026.

With units possessing individual views of Etna, the site becomes a prime candidate for tourist activity, especially given that it is accessible by car in under two hours from Catania and Messina. Each residential structure is large enough for one to two-key occupancy, while larger

⁷² Sabrina Cernuschi, “Morfia: itinerari visibili di un borgo fantasma,” *Italiani.it*, May 20, 2019, www.italiani.it/morfia-itinerari-visibili-di-un-borgo-fantasma.

structures exist for community gathering and learning. Fog and clouds often roll across the mountainous site, welcoming the implementation of fog and dew collection technologies (Figure 25). These would be integrated into gravitational distribution systems operating at both the site and building scales, given that each unit is distributed along a uniform grade. Existing terracing reduces the need for further landscape intervention for runoff management and planting. In reimagining the site, the plot's existing olive and cattle cultivation practices are assumed to continue.

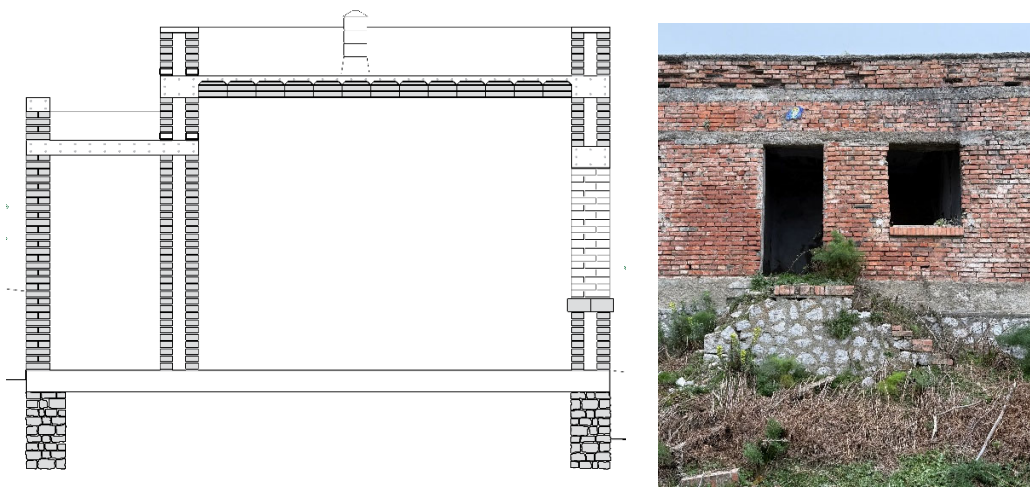


Figure 23 (left): Detail section of residential unit. Drawing by author, March 31, 2026.

Figure 24 (right): Façade materials of residential unit. Photograph by author, March 10, 2026.



Figure 25: Borgo Morfia within rainclouds. Photograph by author, March 10, 2026.

Giardino delle Palme Hotel



Figure 26: Le Mortelle archival postcard from Isabella Fera *L'architettura moderna va in vacanza*, 35.

Shifting tourist interests led to hotel abandonment not only high in Sicily's mountains but also lower on its coasts. The Giardino delle Palme Hotel and its Lido of Aragosta were developed privately in the 1950s to accommodate the country's burgeoning postwar demand for seaside hospitality, positioning itself directly north of Messina on the "Sicilian Riviera" for convenient access for those arriving by ferry from the Italian mainland.⁷³ As speculation moved southwards towards Taormina in favor of mountainous landscapes and Etna views, traffic to the site declined, leading to its 2017 sale of €1.5 million to a company that has yet to restore the property.⁷⁴ Largely intact today, the property was built with reinforced concrete, involving ground floor reception, event, and restaurant spaces, two additional floors of 24 guestrooms (1), 600 day cabins (2), two

⁷³ Isabella Fera, "I lidi di Mortelle: In vacanza sullo Stretto di Messina," in *L'architettura moderna va in vacanza: Una città balneare sullo stretto di Messina* (Siracusa: LetteraVentidue, 2011), 56.

⁷⁴ Redazione, "Da Mortelle a Paradiso: gli 'scheletri' degli hotel e dei lidi che non esistono più (video)," *LetteraEmme*, February 24, 2019, www.letteraemme.it/da-mortelle-a-paradiso-gli-scheletri-degli-hotel-e-dei-lidi-che-non-esistono-piu-video.

swimming pools (3) , and 250 meters of coastline (Figure 27). The site represents the one coastal condition, against the three other inland sites, rather than a location susceptible to drought. While growing food locally is considered, design interventions on the hotel and lido prioritize methods of sustainable water consumption in coastal touristic contexts, applicable to the region’s dominant type of tourism today.

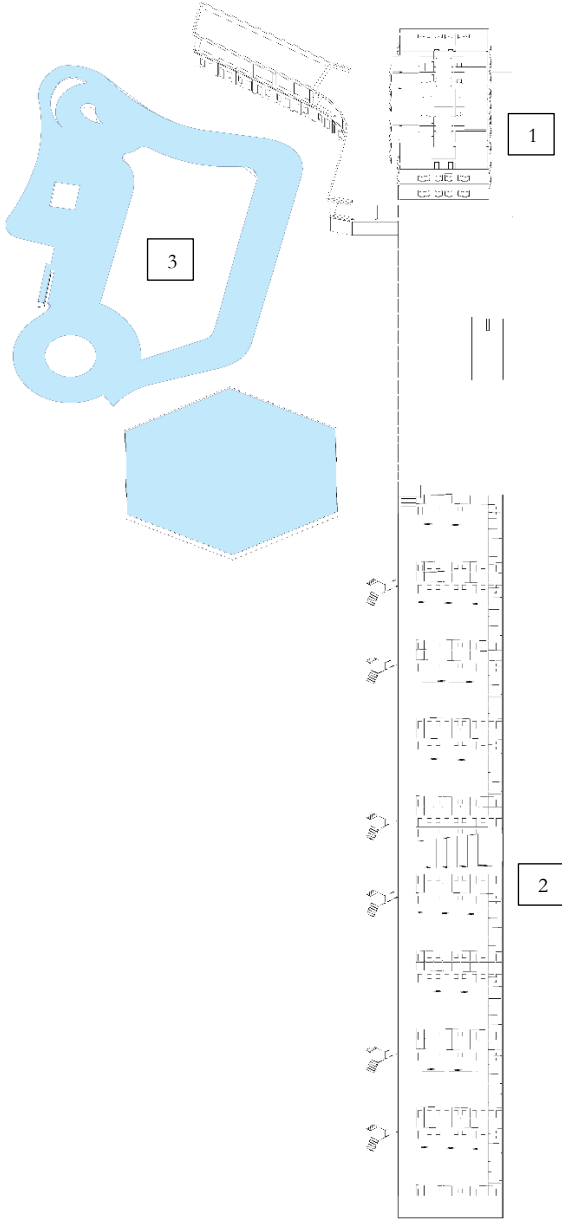


Figure 27: Lido di Mortelle plan oblique. Drawing by author, April 14, 2026.

Miniera di Corvillo



Figure 28: Miniera di Corvillo in surrounding landscape. Photograph by author, March 9, 2026.

Located 30 minutes northwest of Enna, the Corvillo Mine served as one of Sicily's four major potash mines belonging to a noble-founded potassium salt industrial society.⁷⁵ Built in the early twentieth century alongside the island's sulfur boom, the mine was decommissioned in the 1970's as extracts diminished. Today, the site sits within private agricultural land, and former storage facilities have been converted to shelter for sheep and cattle. In addition to two large storage sheds (1), the site hosts two administrative buildings (2), three smaller livestock sheds (3), a central processing building and pithead tower (4), as well as a two-story dwelling building for mine workers, currently serving as shelter for sheep on the site (Figure 27).

⁷⁵ Giuseppe "Pippo" Fava, "Il sale potassico e la storia di uno spreco siciliano," *I Siciliani*, 1980, republished in *Domani*, www.editorialedomani.it/il-sale-potassico-e-la-storia-di-uno-spreco-siciliano-vxi0jwcj.

Situated within M4, the site represents the microclimate most vulnerable to drought and desertification. In terms of terrain, the mine is single site consisting of a local slope maximum, offering unique design opportunities for rainwater capture. In fact, conserving winter rainfall for dry summers becomes the primary design goal in terms of water management on this site. Activity wise, the property's reimagining conserves existing sheep and cow farming activity while introducing a combination of wine grape and olive cultivation, both of which involve less water demand and can be processed into wine and olive oil products for additional farmer revenue.

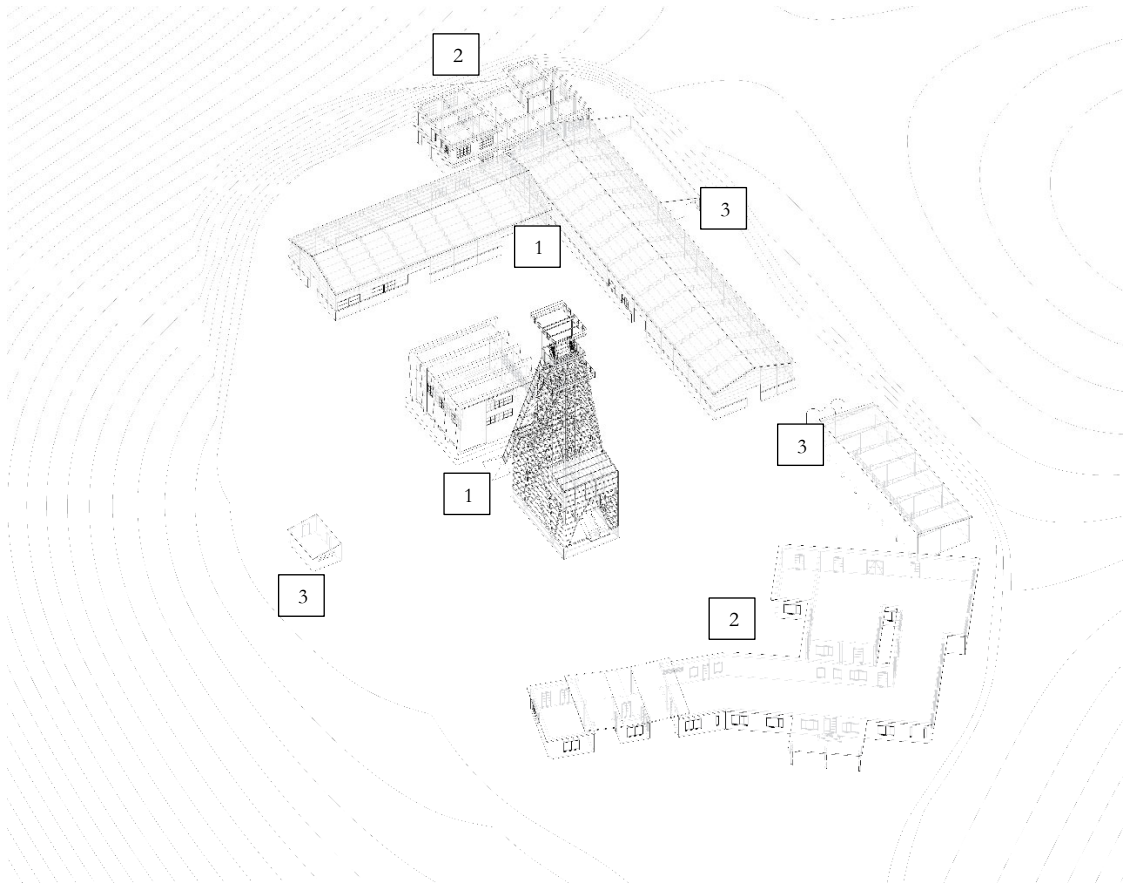


Figure 29: Miniera di Corvillo axonometric drawing by author, April 14, 2026.

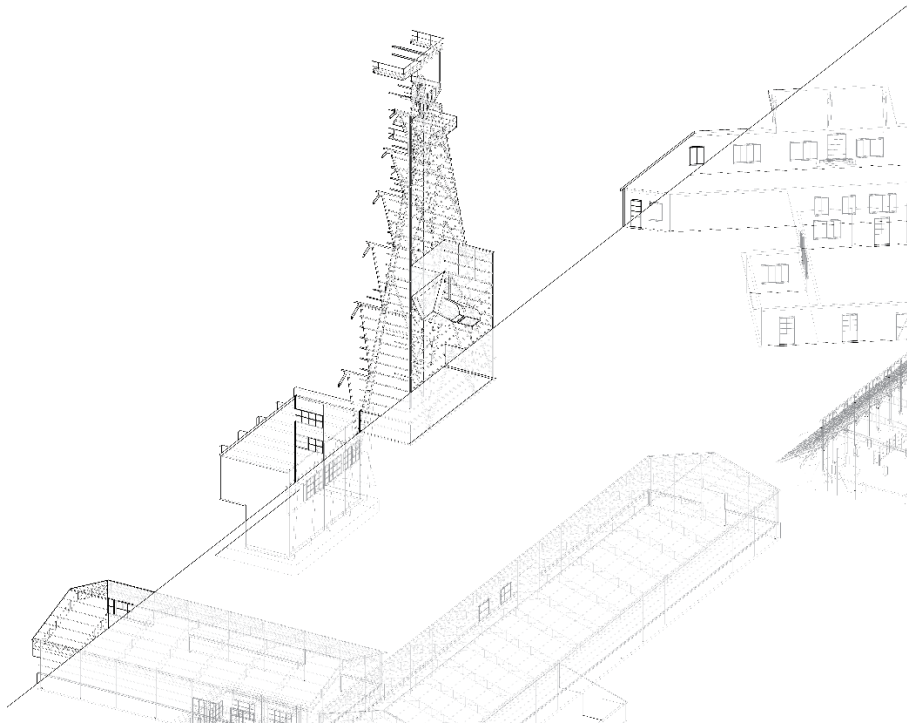


Figure 30: Site section worm's eye drawing by author, April 14, 2026.



Figure 31: View of pithead tower showing material conditions of ceramic and limestone masonry. Photograph by author, March 9, 2026.

CHAPTER 5: Strategies

Literature review across several existing strategies for localized water collection and conservation strategies was executed prior to the deployment of selected strategies on specific sites. The technologies studied range from the object to industrial scales and span from pre-modern developments to contemporary innovations. As research on the existing condition demonstrates the lack of reliability on centralized water management systems, strategies primed for decentralization are privileged for implementation. Also evaluated are cost of implementation and relative efficiency of water quantity delivered to the end user against the quantity initially collected.

Managed Aquifer Recharge

Managed aquifer recharge (MAR) is described as “the process of intentionally injecting or infiltrating water into an aquifer and then extracting the water for use at a later date,” standing as one of the most infrastructurally involved methods of water circularity implementation presented.⁷⁶ In studying the implementation potential for MAR in Australia, Robert Molloy, Lauren Helm, and Peter Dillon designate “high” capacities for average injection rates of over one megaliter per day, totaling over 200 ML/year.⁷⁷ As stormwater runoff is to be treated for contaminants prior to injection, large-scale treatment plants, in addition to stormwater catchments and detention ponds, must be built to achieve this capacity. The absence of stormwater during times of drought would further reduce the quantities meant for injection. The rate of injection and re-extraction is suitable

⁷⁶ John Ward and Peter Dillon, *Robust Design of Managed Aquifer Recharge Policy in Australia*, CSIRO Water for a Healthy Country Flagship Report to the National Water Commission for the Raising National Water Standards Project: Facilitating Recycling of Stormwater and Reclaimed Water via Aquifers in Australia, Milestone Report 3.1 (Canberra: CSIRO, April 2009), 2.

⁷⁷ *Ibid.*, 4.

for municipal and large-scale industrial purposes, necessitating costs that can likely only be realized through public direction, which can be questioned in the context of Sicily. While groundwater storage reduces evaporation loss, the necessity for built infrastructure serving scales beyond micro-communities renders the strategy of managed aquifer recharge difficult to apply in Sicily.

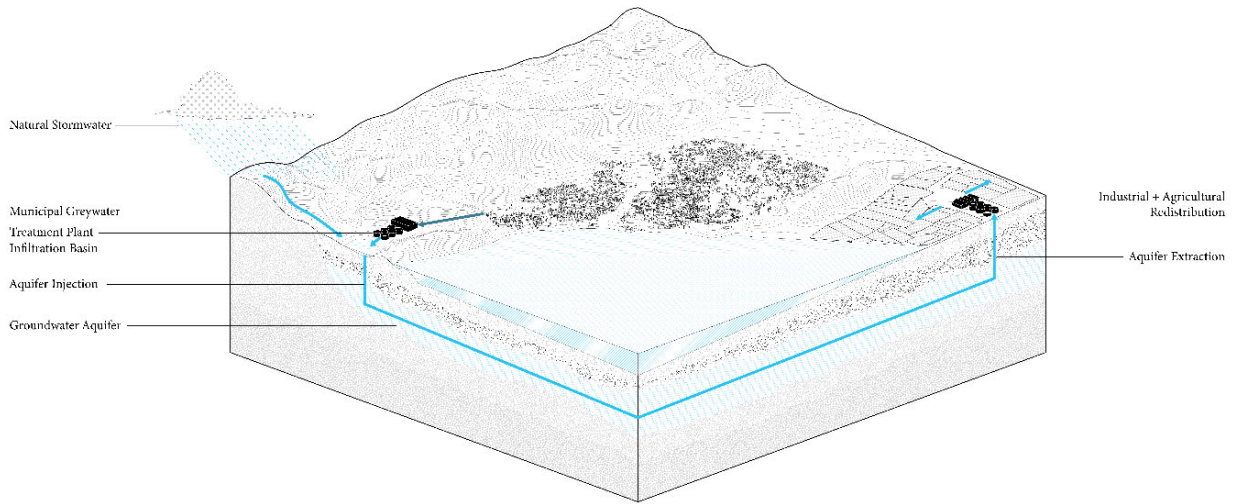


Figure 32: Managed aquifer recharge water movement diagram. Drawing by author, February 4, 2026.

Desalination

The 2024 drought incited a push for the reopening of three desalination plants located in the coastal cities of Trapani, Porto Empedocle, and Gela, providing water to the most affected territories. With improvements, the plants would yield between 96 and 192 liters of converted saltwater per second.⁷⁸ Thus far, €121 million has been funneled into this initiative, with no completed output. Operational costs remain high for these large-capacity facilities, evidenced by a

⁷⁸ Commissario straordinario nazionale per l'adozione di interventi urgenti connessi al fenomeno della scarsità idrica, "Impianti di dissalazione in Sicilia (ex art. 2 DL 208/24)," Presidenza del Consiglio dei Ministri, commissari.gov.it/scarsitaidrica/attivita/interventi-del-commissario/impianti-di-dissalazione-in-sicilia-ex-art-2-dl-20824/impianti-di-dissalazione-in-sicilia-ex-art-2-dl-20824.

production cost of €12 per cubic meter of fresh water.⁷⁹ Despite a high output rate and quantity, this strategy’s reliance on centralized conversion and delivery infrastructure, lack of progress despite significant funding, and high cost render it ineffective for autonomous farming communities.



Figure 33: Porto Empedocle desalination plant exterior. Photograph taken by author, March 11, 2026.



Figure 34: Seawater Desalination Plant Plan by Presidency of the Council of Ministers National Extraordinary Commissioner for the adoption of urgent measures related to the phenomenon of water scarcity, Regione Sicilia, Siciliacque, and FSC showing delivery to distribution infrastructure. Photograph taken by author, March 11, 2026.

⁷⁹ Luigi Lanera, “Criticità degli impianti di desalinizzazione sulle isole,” *ElbaPress*, March 10, 2024, www.elbapress.it/2024/03/10/criticita-degli-impianti-di-desalinizzazione-sulle-isole.

Photovoltaic Reservoir Covers

Sicily's regional government oversees twenty-two reservoirs carrying a combined authorized capacity of nearly 684 million cubic meters, many of which reach this capacity between the months of February and June prior to 2022.⁸⁰ In 2020, 112.4 million cubic meters were dedicated to potable use in the "specialized" system, representing 21.4% of potable water dedicated from all sources.⁸¹ Given this volume and significance of water sourced from reservoirs, implementing floating covers represents a sensible approach to preventing evaporation loss, in addition to algae bloom, which has yet to be observed in Sicily's reservoirs. Common in other arid contexts such as southern California, these systems typically consist of either floating, interlocking plastic units or monolithic tarps.

Covering large surfaces of water, however, constitutes new ground on which economic opportunities offer themselves. Private energy solutions companies, in conjunction with the Universidad Politécnica de Valencia, have devised a system through which photovoltaic panels can be mounted onto modular polyethylene units, generating an additional source of income to farmers in drought-ridden southern Spain while conserving existing water reserves. The prototype was tested on a reservoir near Alicante, covering only 7% of the 4700 square meter surface. Additionally, the team found that construction of this floating system involves 30% more upfront costs compared to conventional land-based photovoltaic systems. Building this installation involved an upfront cost of €68,025, generating a 12.65% internal rate of return when priced at the federal rate of €0.29 per kilowatt-hour from the total annual production of 135,000kWh.⁸² While lucrative, large-scale applications of this method have yet to be observed, and a high upfront cost proves this water conservation strategy less realistic in the development of localized systems in Sicily.

⁸⁰ Autorità di Bacino della Sicilia, *Volumi totali presso i principali invasi siciliani*.

⁸¹ ISTAT, *Censimento delle acque per uso civile, industriale e irriguo*, 6.

⁸² Carlos Ferrer-Gisbert et al., "A New Photovoltaic Floating Cover System for Water Reservoirs," *Renewable Energy* 60 (2013): 64-69.

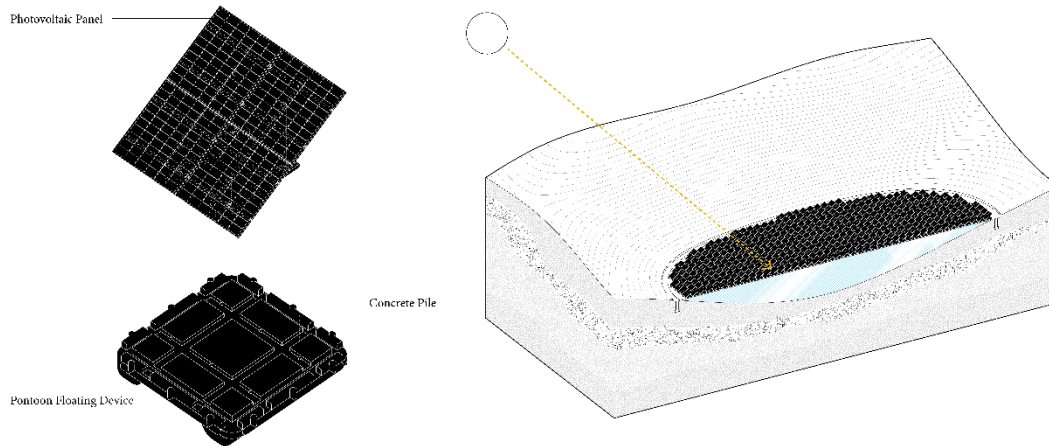


Figure 35: Photovoltaic reservoir cover assembly diagram. Drawing by author, February 4, 2026.

Agricultural Terracing

First dated to circa 2000 BCE by archaeology surveys in the Levant, agricultural terracing stands as a long-established method of winter rainfall retention, runoff slowing, and soil regeneration. Using stone as retention walls, the method proliferated in Sicily with grape and olive cultivation around the Hyblaean highlands during Greek antiquity.⁸³ While the method originally enabled agriculture on sloped terrain, it offers additional benefits for natural stormwater treatment, including agricultural runoff containing pesticides and other chemicals.⁸⁴ Another attractive feature is that terraces can be scaled as needed according to each farming community, becoming applicable to smaller, localized systems. While multiple geometric types of terracing exist, the most common type, contour terracing, becomes a suitable fit for preventing soil erosion and degradation premised by sloped terrain. Construction involves the removal of topsoil to form terraces at suitable widths for the desired crop, assembly of retention walls—typically from piled stones—and redistribution of

⁸³ Franco De Angelis, *Archaic and Classical Greek Sicily: A Social and Economic History* (Oxford: Oxford University Press, 2016), 254.

⁸⁴ Rolland Z. Wheaton and Edwin J. Monke, *Terracing as a “Best Management Practice” for Controlling Erosion and Protecting Water Quality*, AE-114 (West Lafayette, IN: Purdue University Cooperative Extension Service).

the removed topsoil to achieve the desired grade of each terrace. Outside of conventional tilling and maintenance, little additional labor and monetary cost is needed upfront, making terracing a strategy suitable for implementation in emerging agricultural communities.

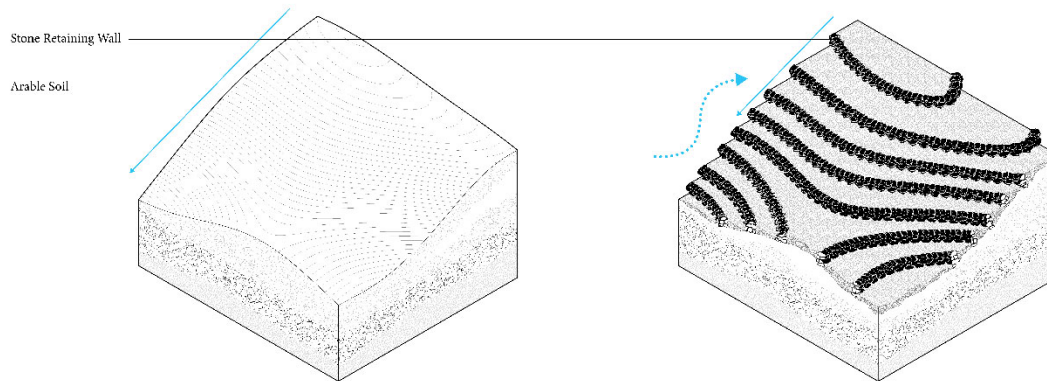


Figure 36: Agricultural terracing diagram. Drawing by author, February 4, 2026.

Giardini Panteschi

Original to one of Sicily's satellite islands near Tunisia, Pantelleria, the *giardini panteschi* stand as a vernacular agricultural technology first documented in the fifteenth century, with little knowledge of the date of their first constructions. Each structure consists of a ring of stacked volcanic rocks which enclose either one or a cluster of citrus trees, often oranges. The thermal properties and high surface area of porous igneous rock lend themselves to rapid condensation and storage of surrounding vapor during cool night hours. As the rock warms through solar exposure during the day, stored water is released back into the interior of the ring. In some cases, the *giardino pantescho* is submerged beneath grade to both capture groundwater and prevent the release of water to the ring's exterior. In all cases, the enclosure's top surface is sloped inwards to deliver rainwater to the interior. At the base, rainwater channels open into small inlets that admit runoff from the

surrounding landscape into the *giardino*'s soil.⁸⁵ As such, moisture and cooling delivered to the ring's interior creates an optimal, greenhouse-like environment suitable for citrus cultivation. Given Pantelleria's similar climate to Sicily itself, the optimal performance of the *giardini pantecshi* at individual plant scales, and the utilization of locally available material, the implementation of such gardens is realistic in the context of small agricultural communities.

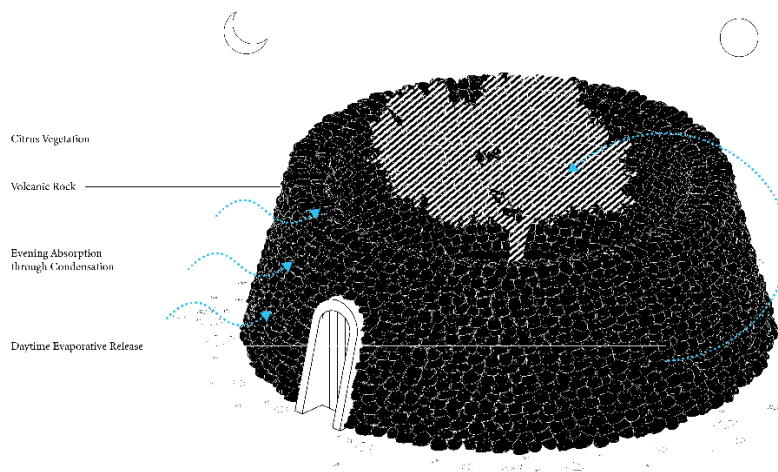


Figure 37: *Giardino pantesco* moisture movement diagram. Drawing by author, February 4, 2026.

Atmospheric Water Harvesting

First researched institutionally in 1956 at the Catholic University of the North in Chile, modern-day “fog catchers” stand as often spontaneous structures holding large sheets of mesh that capture vapor from dense clouds and fog. Gravity channels condensed water into troughs that can be transported for industrial, agricultural, and domestic use. As part of the German CloudFisher nonprofit project, the construction of 31 devices in Morocco’s Atlas Mountains yielded 22 liters of potable water per year per square meter of mesh, supplying 16 villages with 1,300 people with WHO

⁸⁵ Francesco Brignone, *I giardini dell'isola di Pantelleria* (Pantelleria: Dario Flaccovio Editoriale, 1995), 51.

standard approved drinking water.⁸⁶ Further research developed by Brook Kennedy relates the vertical design of the mesh pattern itself to water yield from fog catchers, proposing that patterns weaved with a drip feature reduce the amount of condensation that is stopped by horizontal elements.⁸⁷ Additional to the net structures, the development of such a system requires pipes to bring water from collection sites at higher elevations to consumption sites and storage cisterns in cases of excess. The realization of CloudFisher in Morocco required an upfront investment of €600,000, sourced largely from private donation.⁸⁸ In the case of proposing a holistic water management system for individual agricultural communities in Sicily, fog catching technologies may serve as one of multiple collection strategies, integrated into larger infrastructures that manage and distribute water from all sources.



Figure 38: Fog-harvesting “CloudFisher” nets installed on Mount Boutmezguida in the Anti-Atlas Mountains, Morocco.
Source: WasserStiftung, “Morocco: Mount Boutmezguida,” www.wasserstiftung.de/en/projects/morocco-mount-boutmezguida.

⁸⁶ WasserStiftung. “Mount Boutmezguida.” www.wasserstiftung.de/en/projects/morocco-mount-boutmezguida.

⁸⁷ B.S. Kennedy, “Bio-Inspired Fog Harvesting Meshes: A Review,” *Advanced Functional Materials* 34, no. 35 (2024): Article 2306162, doi.org/10.1002/adfm.202306162.

⁸⁸ WasserStiftung. “Mount Boutmezguida.”

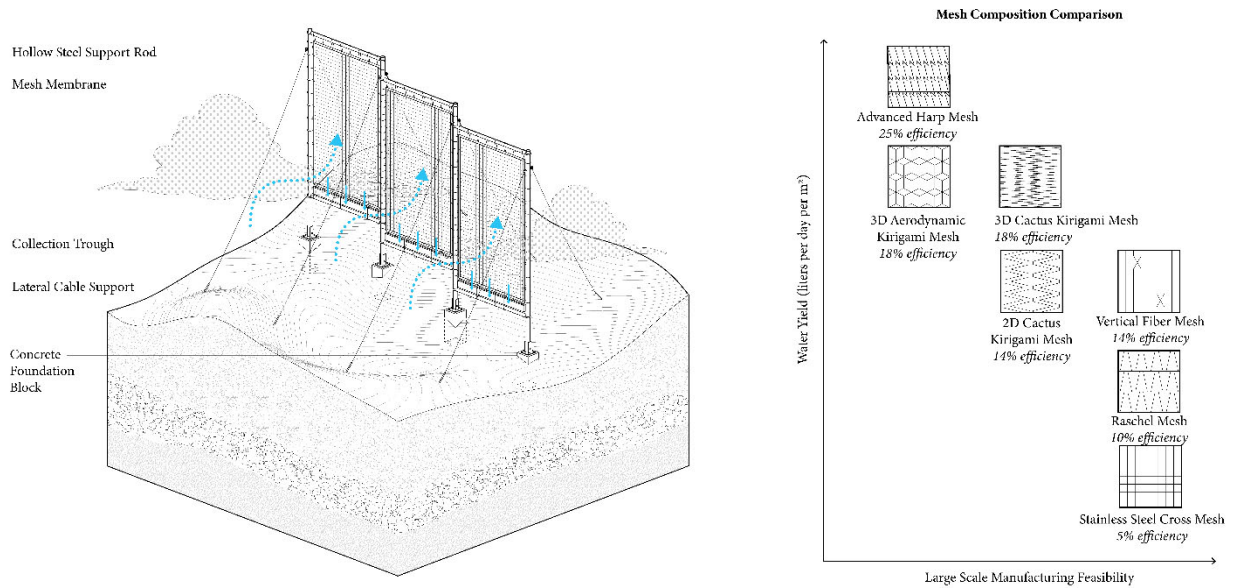


Figure 39: Atmospheric water harvesting diagram with efficiencies of several common mesh patterns sorted by manufacturing feasibility. Drawing by author, February 4, 2026.

Dew Collection

Perhaps one of the least involved strategies reviewed in terms of initial construction expenditure is passive dew collection sheets, studied mostly throughout southern France and Corsica between 1929 and 2003. Prototypes constructed by researchers at the University of Corsica found that polyethylene foil sheets embedded with TiO_2 and BaSO_4 microspheres yielded 3.6 liters per day on a 30 m^2 collection surface area. Surfaces were rotated 30 degrees relative to the horizontal, facing against nocturnal winds. Although the water was deemed potable according to French requirements, low acidity and high concentration of suspended solids signal a need for treatment after collection if used for drinking purposes. Inclusive of the structure, foil, and sewing assembly, the prototype necessitated a construction cost of €1980, yielding an average cost of €0.30 per liter collected assuming a 50-year structural lifespan with foil replacement every 16 months.⁸⁹ Due to its relatively

⁸⁹ Marc Muselli, Daniel A. Beysens, Jacques Marcillat, Irina Milimouk, Torbjörn Nilsson, and Alain Louche, “Dew Water Collector for Potable Water in Ajaccio (Corsica Island, France),” *Atmospheric Research* 64, nos. 1–4 (September 2002): 297–312, doi.org/10.1016/S0169-8095(02)00100-X.

low cost, scalability, and functionality in the absence of fog and rain, passive dew collection remains a favorable strategy for integration into holistic systems in Sicilian farming communities.

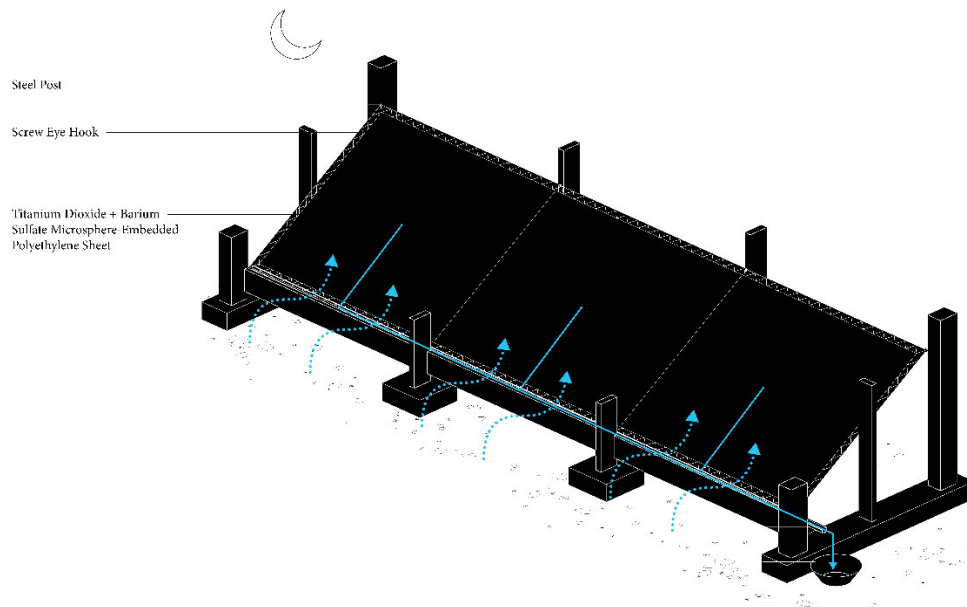


Figure 40: Atmospheric water harvesting diagram with efficiencies of several common mesh patterns sorted by manufacturing feasibility. Drawing by author, February 4, 2026.

In response to the demonstrated failures of centralized water systems—whose implementation remains slow, capital-intensive, and entangled in unreliable public governance—this thesis advances a shift toward decentralized, self-buildable strategies that operate at the scale of the individual and the small agricultural collective. By prioritizing low-cost, locally sourced, and modular interventions, these systems enable direct engagement with water collection, storage, and distribution, reducing dependence on external infrastructure. Rather than a singular solution, this approach assembles a network of complementary techniques that collectively enhance resilience, positioning water management as an embedded architectural and landscape practice capable of functioning independently of institutional control.

Chapter 6: Intervention

Following the evaluation of existing strategies and the decision to incorporate vernacular methods, this chapter represents their synthesis and adaptations to the specific sites, materials, and their methods of assembly. While the deployment of these adaptations to represent cohesive agritourism proposals falls under the domain of Directed Research, the designs discussed in this chapter use the sites and their existing conditions as a starting point to deliver a handbook of strategies that are adaptable across biome types—mountainous, semi-arid hinterland, and coastal—and typical construction methods—brick masonry, limestone block, and reinforced concrete. Rather than developing concrete proposals, the designs use the programmatic and functional demands of agritourism as a guide to posit intelligent thinking surrounding water management as a priority for their conception. Each prototype developed responds to a specific programmatic component of agritourism, representing the water-consuming functions of bathing, cooking, and growing while also incorporating the presence and management of water into spaces for private respite and public gathering. These prototypes present themselves as mundane, yet uncanny, assemblies that can be applied to sites of everyday construction, suggesting that a new water-centered architecture can be implemented readily but has yet to be built on a normalized or widespread basis.

Bathroom

As the principal site for water consumption in accommodation buildings, one guest bathroom is often built for each unit of lodging, preparing the venue for excess use. In Europe,

water use per guest amounts to 300 liters per day, double that of an average resident.⁹⁰ Economist Bethany Cooper finds that this can be attributed to a psychological proclivity to risk-taking and indulgence, as tourists apply an escapist mentality to ignore ecological consequences.⁹¹ This mentality is only supported by private bathrooms, where social pressures against excess consumption are absent. While shared kitchens and dining spaces maximize tourist-worker interactions and provide for a more engaged relationship with agricultural output, shared bathrooms reduce consumption by limiting access and providing social monitoring and accountability. Across sites, bathrooms in the design proposals are shared by at least two lodging units.

In addition to reduced use, re-use is critical in bathrooms. Circular principles allow for the exploitation of varying degrees of potability between shower, sink, and toilet use. Through gravity-based movement and filtration, water travels from one fixture to a tank that supports the flow of the next, reducing demand from other, more centralized supplies.

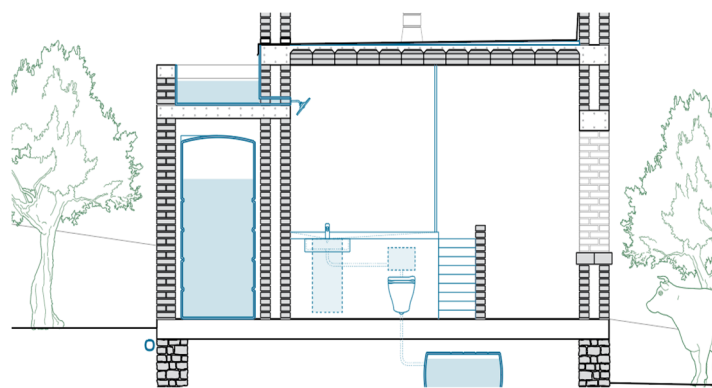


Figure 41: Bathroom water re-use illustrating rainwater capture and storage, use for shower, and subsequent draining and filtering into faucet and toilet prior to entering septic tank. Drawing by author, March 31, 2026.

⁹⁰ Huy Quan Vu, Gang Li, Rob Law, and Ben Haobin Ye, “Exploring the Travel Behaviors of Inbound Tourists to Hong Kong Using Geotagged Photos,” *Tourism Management* 46 (2015): 222–232, doi.org/10.1016/j.tourman.2014.07.003.

⁹¹ Bethany Cooper, “The Use of Potable Water by Tourists: Accounting for Behavioral Differences,” in *Water Policy, Tourism, and Recreation: Lessons from Australia*, ed. Lin Crase and Suzanne O’Keefe (London: Routledge, 2011), 180.

Kitchen

Educational kitchens are where the proximity between cultivation and consumption becomes legible through everyday practice. In models such as the Valdibella, food preparation is inseparable from its agricultural origins, as participants engage directly with seasonal ingredients, cultivation methods, and the labor embedded within each product. This approach situates the kitchen as a site of collective learning, where visitors move from passive consumption toward an active understanding of farm-to-table systems, reinforcing the social and ecological value of local production.

Beyond their role as didactic spaces, kitchens offer significant opportunities for circular water use and material recovery. Greywater from food preparation and dishwashing, when filtered through grease traps and biofiltration systems, can be redirected toward irrigation or secondary cleaning uses, aligning kitchen outputs with adjacent agricultural systems. Organic waste streams can be composted or anaerobically digested on-site, returning nutrients to the soil and reducing reliance on external inputs. Through these integrations, the kitchen operates as an infrastructural node within a broader cycle, where consumption and production are brought into closer proximity, and where design enables the continuous revaluation of resources rather than their disposal.

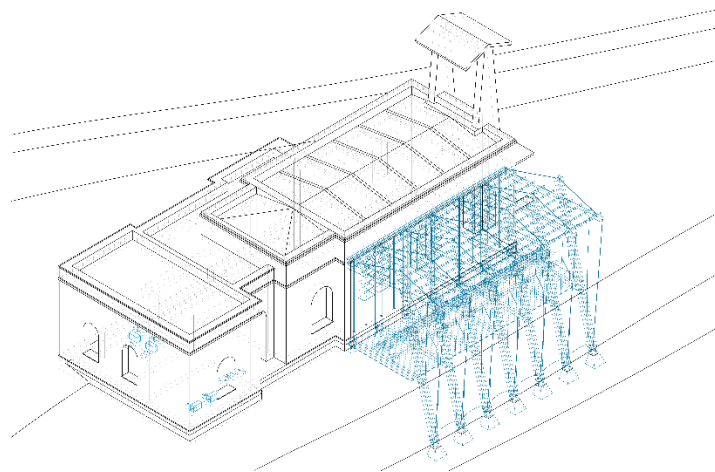


Figure 42: Axonometric of church repurposing into educational kitchen with timber dining enclosure addition and sink-to-toilet water recycling fitouts. Drawing by author, April 14, 2026.

Dining

The reimagination of the three sites involves provisions for shared dining between all members of the agritourism operation, utilizing a culturally valued and enduring mealtime as opportunity for interaction and education. The mild climate invites the design of semi-outdoor, pavilion-like structures. The steel and limestone shed at the Miniera di Corvillo is chosen for its size and proximity to the shared kitchen and lodging units. Despite its optimal location and square footage, the shed's southern face is open, posing risks of thermal discomfort especially in summer months. A timber structure faced with basalt cladding panels is proposed as a screen occupying this face, reducing solar heat gain. Inspired by the functions of the *giardini panteschi*, the panels of volcanic rock absorb both moisture and heat for slow release, regulating the temperature and humidity conditions within the dining shelter. Object-scale spaces within the timber structure are reserved for herb cultivation supported by the basalt enclosure's greenhouse environment.

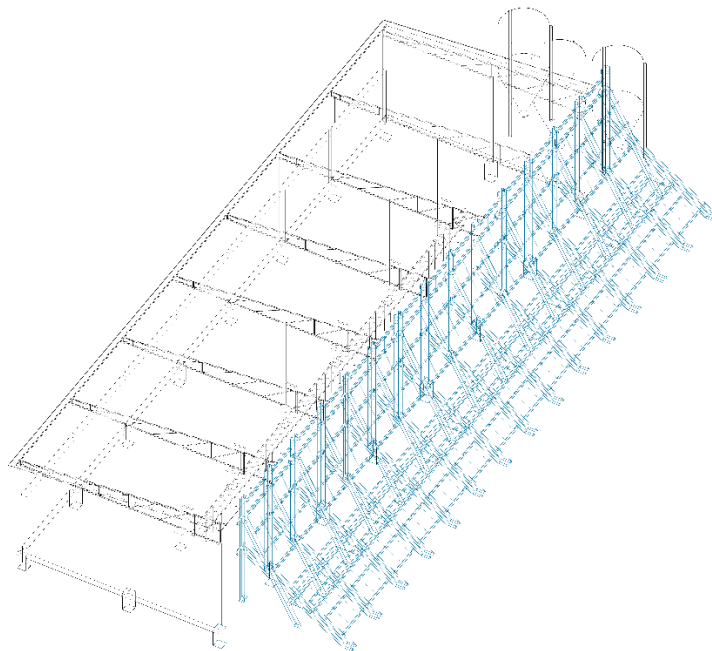


Figure 43: Worm's eye (viewing from beneath ground to expose structure) drawing of dining pavilion enclosure, timber and basalt assembly drawn in blue. Paired timber columns sandwich existing joist assemblies, offering reinforcement. Drawing by author, April 7, 2026.

Superstructure

At the mountainous Borgo Morfia site, a timber superstructure is introduced above a typical dwelling unit to support both habitation and atmospheric water harvesting, accommodating two to three tourists or workers within an expanded architectural envelope. Drawing from seismic timber bracing strategies observed in Calabria, the structure establishes both structural resilience and environmental responsiveness. Fog mesh is oriented toward prevailing cloud movement, while a polyethylene dew collection film is stretched across a timber trellis system, capable of being rolled up to support seasonal cultivation such as tomatoes. Water collected from both mesh and film is funneled directly into adjacent olive tree plantings, reinforcing the integration of domestic and agricultural systems. Above, rainwater is captured at the uppermost surface and stored in a tank positioned between the new timber frame and the existing roof, supplying domestic uses—particularly bathrooms—within the unit below.

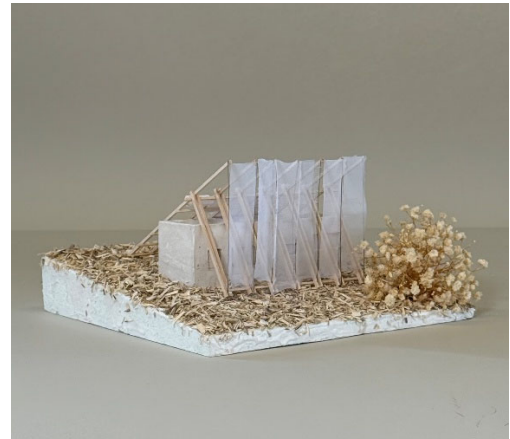
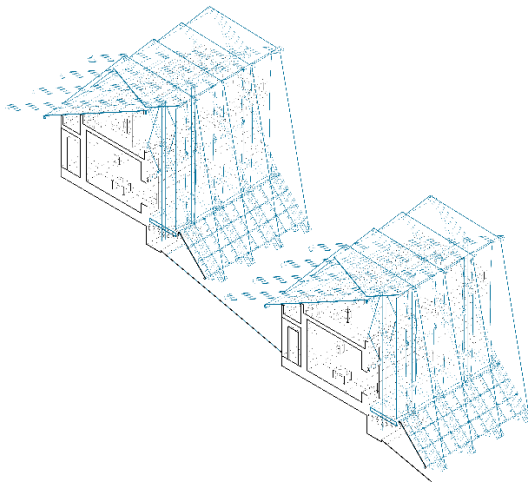


Figure 44 (left): Section cutaway axonometric of Borgo Morfia accommodation units with fog-catching superstructure (new structure drawn in blue). Drawing by author, April 7, 2026.

Figure 45 (right): Model of early superstructure iteration showing mesh materiality and tactile ground conditions. Model and photograph by author, April 2, 2026.

Conclusion

As drought is not unique to Sicily and water is a key resource for all, the design proposals presented can be applied universally. In 2024, the focus year of this thesis, soil anomaly at equal or greater severity extended beyond Sicily and the Mediterranean to encompass northern Pakistan, Southeast Asia, Sub-Saharan Africa, Argentina, and Australia.⁹² In recent years, similar resource pressures exerted by unbridled tourist flows have incited activist response in India, the Balearic Islands, Santorini, Mykonos, Morocco, Chile, and Hawaii, where the industry has consistently received privileged water access in circumstances of scarcity. Faced with an increasingly urgent climate crisis, architectural proposals should be delivered with a certain modularity and ease of construction that lend actionability. Beyond a short-term solution in this moment, however, we need to rethink the way we build to foreground the finite nature of water and its essential role in all aspects of our livelihoods, which sits at the core of what this thesis tackles.

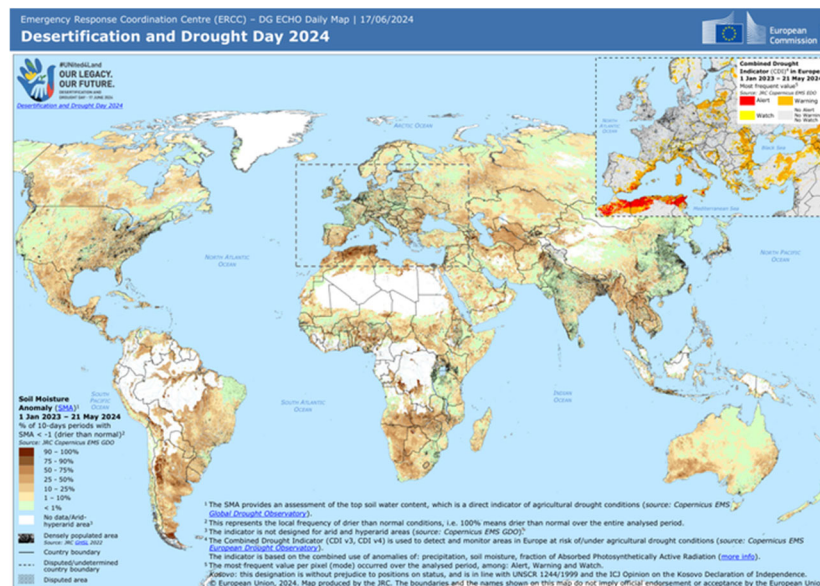


Figure 46: Emergency Response Coordination Centre (ERCC), DG ECHO. *Desertification and Drought Day 2024: Global Soil Moisture Anomaly Map*, 17 June 2024

⁹² European Commission, Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO), *Desertification and Drought Day 2024 – DG ECHO Daily Map*, June 17, 2024, map, ReliefWeb.

While universality is favored for rapid deployment, such proposals would mean little—and serve little—without considering the forces, histories, and people that shape places as specific as Sicily. By unpacking the region’s dynamics as one case study, I advocate for an architecture that performs beyond Kenneth Frampton’s argument for “critical regionalism,” in which architecture’s physical manifestations reflect its context and history.⁹³ More than just a reflection of existing conditions, architecture can play an active role in shaping the future of that particular place when those exact conditions are investigated thoroughly and directed towards an architectural response. As demonstrated through the research-to-design process, using vernacular construction methods and existing fabric as a jumping point for the speculative imaginary focuses the architectural response to provide much-needed impact.

In practice, the commonplace method of architectural project delivery depends on the property owner as the catalyst for production, enlisting the architect to realize the owner’s—often profit-driven—visions of the built future. While this process has proved successful in allowing architects to profit and focus on their design skills, it represents a lost opportunity to exercise their sharp contextual awareness enabled through rigorous research capabilities. By walking through a research-to-design process step-by-step in this thesis, I argue for its feasibility in real-world applications. As funding for construction serves as a primary obstacle to realizing projects, contributing to the primacy of the developer model, architects must look elsewhere to ensure that their knowledge is represented in its fullest among built work. Nonprofits, public grants, and social cooperatives, such as the agritourism proposals named in Chapter 3, represent just some of the

⁹³ Kenneth Frampton, “Towards a Critical Regionalism: Six Points for an Architecture of Resistance,” in *The Anti-Aesthetic: Essays on Postmodern Culture*, ed. Hal Foster (Port Townsend, WA: Bay Press, 1983), 19.

many channels at the architect's disposal to pursue impactful work through. Via this approach, architects can actionably preserve agency and advance agendas defined by social and ecological health.

Architecture here operates through a deep attunement to the specific conditions uncovered through research—material, climatic, political, and cultural—rather than through abstract models of intervention. In Sicily, where water is moved unevenly across landscapes and infrastructures shaped by long-standing inequities, design gains precision by responding directly to these localized realities. The proposals in this thesis suggest that such specificity is not a constraint but a form of knowledge production: one that enables architecture to identify exact points of leverage within complex systems and to act on them. In this way, the work extends beyond Sicily not by generalizing its conditions, but by demonstrating how closely situated inquiry can generate interventions that are both grounded and transferable.

Critical Statement

In its visual dissemination, this thesis takes creative inspiration from a variety of offices and individuals in order to map abstract forces, identify areas in need of action, and communicate the function of alternative architectural strategies for Sicily's agritouristic future. To connect everyday behaviors to larger forces of capitalism and exploitation, I turn to the rendered axonometric drawings of Common Accounts and narrative illustrations of Design Earth, both of which demonstrate excellence in capturing the macro scale and delivering architectural representation as social, economic, and cultural critique. To understand how these forces distribute themselves across the Sicilian geography, I model my representation after School of Architecture instructor Rosita Palladino's strategies of countermapping, namely in her seminar-produced composite drawing, *Sardigna no est Italia*. Countermapping is further understood through the cartography of Assistant Professor Meghan Kelly from the Geography and Environment department.



Figure 47: Protein Clickbait: Protocols for Processing. "Human bodies, gyms, and farms alike are stations for the bioamplification of proteins in an atomized supply chain driven by self-design." Drawing by Common Accounts. www.commonaccounts.online/protein



Figure 48: Sardigna no est Italia: Act I. Drawing by Rosita Palladino. rositapalladino.com/Sardigna-no-est-Italia

In proposing architectural interventions on the landscape, my advisor, Nimet Anwar's, work from NO OFFICE offers another source of representational inspiration, both describing how modular systems can be deployed in various locations and representing with specificity the substance of the ground on which architecture interacts with. Anwar also brought in Cornell University Landscape Architecture Professor Anne Weber to administer a lecture for our Directed Research section in which she showed helpful master's student work examples highlighting intentional investigation of the ground and its subsequent representation.

In addressing existing architectural fabric and designing with material and tectonic specificity in mind, I turn to the work of London-based research firm Material Cultures, especially in the development of a full-scale mockup of the timber-framed structures I have devised. The book *Heterogeneous Constructions* by Aaron Forrest and Brett Schneider inspires the drawings included of my design, as they clearly delineate the type of material used to ease apprehension of complex tectonic assemblies. While physical models arrive from my own experimentation and judgment, they aim to meet the craft standards of Salazar Sequerom Medina, Peter Zumthor, and early explorations of Elizabeth Diller and Ricardo Scofidio in their achievement of tectonic specificity and material tactility. Ultimately, the creative output of this thesis affirms that architecture is not produced in a creative vacuum, but emerges through an ongoing synthesis of shared knowledge, disciplinary discourse, and the collective refinement of representational and material practices.

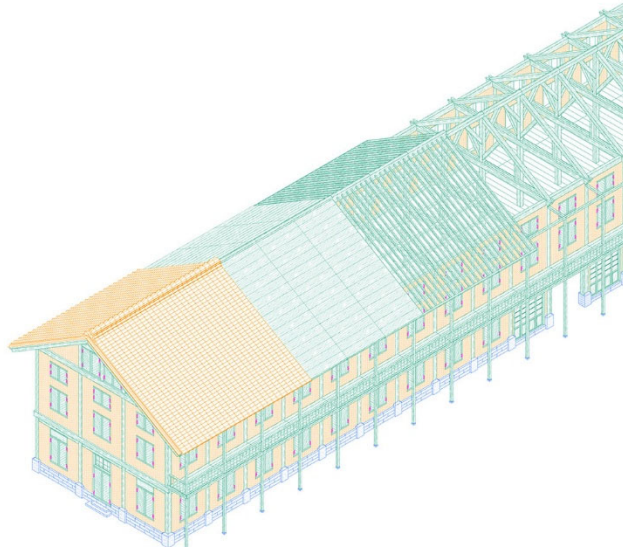


Figure 49: Aaron Forrest and Brett Schneider, *Heterogeneous Constructions: Studies in Mixed Material Architecture*. Drawing illustrating the layered assembly and coordination of mixed structural systems across a continuous building section.



Figure 50: *Model of the Allmannajuvet Zinc Mine Museum*, 2016. Presented as part of Atelier Peter Zumthor's exhibition of architectural models at the Venice Architecture Biennale, the piece reflects the project's dispersed timber structures elevated within the Norwegian landscape, articulating construction as a sequence of lightweight, site-responsive interventions.

Works Cited

- Autorità di Bacino del Distretto Idrografico della Sicilia. *Volumi totali (al lordo di interrimenti e volumi indisponibili) presso i principali invasi siciliani: Anno idrologico ottobre 2025–settembre 2026 (aggiornamento al 1 gennaio 2026)*. Palermo: Regione Siciliana – Presidenza, 2026.
- Banca d'Italia. *Economie regionali: L'economia della Sicilia*. Rome: Banca d'Italia, 2024.
- Branchereau, Gaël. "In Drought-Hit Sicily, Rainwater Is Dumped in the Sea." *Phys.org*, August 2024.
- Brignone, Francesco. *I giardini dell'isola di Pantelleria*. Pantelleria: Dario Flaccovio Editoriale, 1995.
- Bubola, Emma. "After Losing Crops to Drought, Sicily Fears Losing Tourism, Too." *New York Times*, July 24, 2024.
- Business & Human Rights Resource Centre. "Italy: 62,000 Undocumented Farmworkers at Risk of 'Widespread Labour Exploitation' on Sicily, Finds Migrants' Rights Campaign Platform." November 25, 2024.
- Campolo, Maria Gabriella, Antonia Cava, Massimo Mucciardi, and Debora Maria Pizzimenti. "Between Staying and Leaving: Understanding Depopulation in Sicily's Inner Areas." *Cities* 169 (2026): Article 106567.
- Cernuschi, Sabrina. "Morfia: itinerari visibili di un borgo fantasma." *Italiani.it*, May 20, 2019.
- Commissario straordinario nazionale per l'adozione di interventi urgenti connessi al fenomeno della scarsità idrica. "Impianti di dissalazione in Sicilia (ex art. 2 DL 208/24)." Presidenza del Consiglio dei Ministri.

Corte dei Conti. Sezione di controllo per la Regione Siciliana. *Bozza di referto sulla gestione dello stato di emergenza in relazione alla situazione di grave deficit idrico e alla criticità delle infrastrutture nel territorio della Regione Siciliana*. Palermo: Corte dei Conti, 2025.

Centro di Ricerca Politiche e Bioeconomia. *L'agricoltura in Sicilia in cifre 2024*. Rome: CREA, 2024.

De Angelis, Franco. *Archaic and Classical Greek Sicily: A Social and Economic History*. Oxford: Oxford University Press, 2016.

Duffy, Rosaleen. "Misery, Self-Indulgence, and Self-Denial." In *A Trip Too Far: Ecotourism, Politics and Exploitation*. London: Earthscan, 2002.

European Commission, Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO). *Desertification and Drought Day 2024 – DG ECHO Daily Map*. Map. June 17, 2024. ReliefWeb.

European Union. *Regulation (EU) No. 604/2013 of the European Parliament and of the Council of 26 June 2013*. *Official Journal of the European Union* L 180/31 (June 29, 2013).

Fantappiè, M., S. Priori, and E. A. C. Costantini. "Soil Erosion Risk, Sicilian Region." *Journal of Maps* 11, no. 2 (2015): 1–19.

Fava, Giuseppe "Pippo." "Il sale potassico e la storia di uno spreco siciliano." *I Siciliani*, 1980.

Fera, Isabella. "I lidi di Mortelle: In vacanza sullo Stretto di Messina." In *L'architettura moderna va in vacanza: Una città balneare sullo stretto di Messina*. Siracusa: LetteraVentidue, 2011.

Ferrer-Gisbert, Carlos, et al. "A New Photovoltaic Floating Cover System for Water Reservoirs." *Renewable Energy* 60 (2013): 63–70.

Frampton, Kenneth. "Towards a Critical Regionalism: Six Points for an Architecture of Resistance."

In *The Anti-Aesthetic: Essays on Postmodern Culture*, edited by Hal Foster, 16–30. Port

Townsend, WA: Bay Press, 1983.

Fraschilla, Antonio. "Il Sud si sta spopolando: oltre un milione in fuga negli ultimi 20 anni."

SVIMEZ, January 17, 2024.

Giglioli, Ilaria, and Erik Swyngedouw. "Let's Drink to the Great Thirst! Water and the Politics of

Fractured Techno-Natures in Sicily." *International Journal of Urban and Regional Research* 32, no.

2 (2008): 392–414.

Hoque, Nasibul. "Trapped by Italy's Policy Paradox: Asylum Seekers and Migrant Farmworker

Exploitation." *Migration Policy Institute*, August 21, 2024.

InfoMigrants. "Almost 62,000 Workers Undocumented on Farms in Sicily." November 25, 2024.

International Tourism Partnership. *Water Stewardship for Hotel Companies*. London: International

Tourism Partnership, 2018.

Istituto Nazionale di Statistica (ISTAT). *Censimento delle acque per uso civile, industriale e irriguo: Tavole di*

dati (anno 2020). Excel spreadsheet. Rome: ISTAT, 2022.

Istituto Nazionale di Statistica (ISTAT). *Il Censimento permanente della popolazione in Sicilia: Anno 2023*.

Rome: ISTAT, 2025.

Istituto Nazionale di Statistica (ISTAT). *Water Statistics: Years 2020–2024*. Rome: ISTAT, 2025.

Jęczmyk, Anna, and Roma Ryś-Jurek. "Comparative Analysis of Official Revenues from Agritourism

in Italy and Poland." *European Research Studies Journal* 27, no. 3 (2024): 580.

- Kennedy, B. S. “Bio-Inspired Fog Harvesting Meshes: A Review.” *Advanced Functional Materials* 34, no. 35 (2024): Article 2306162.
- La Mantia, Cristiano. “Il resort dismesso in riva al mare e le speranze di rinascita.” *Ascosi Lasciti*, November 13, 2023. ascosilasciti.com/it/2023/11/13/resort-dismesso-abbandonato-sicilia-urbex.
- La Poderosa Doc. *Dry Sicily*. Documentary film. Vimeo video. Posted 2024. vimeo.com/1120780649.
- Lanera, Luigi. “Criticità degli impianti di desalinizzazione sulle isole.” *ElbaPress*, March 10, 2024.
- Maak, Niklas. “Eurodrive: Repopulation Utopia.” In *Countryside: A Report*, edited by OMA and Rem Koolhaas, 20–61. Cologne: Taschen, 2020.
- Massarutto, Andrea. “Il settore idrico in Italia.” In *Acqua e sviluppo: Una politica delle risorse idriche per il futuro del Mediterraneo*, edited by Emanuele Ferragina. Bologna: Il Mulino, 2003.
- Muselli, Marc, et al. “Dew Water Collector for Potable Water in Ajaccio (Corsica Island, France).” *Atmospheric Research* 64, nos. 1–4 (2002): 297–312.
- Pearson, Lauren R. “Land on Fire: The Spatial Production of the Mafia.” *Criminology & Criminal Justice* (2024).
- Regione Siciliana. “Aree interne, dalla Regione 37 milioni per il ripopolamento.” December 6, 2025.
- Regione Siciliana. “Siccità, dichiarato lo stato di calamità naturale su tutto il territorio siciliano.” February 9, 2024.
- Santino, Umberto. “Il ruolo della mafia nel saccheggio del territorio.” *Città d’Utopia*, no. 11 (1994).

Santino, Umberto. “L’acqua rubata: dalla mafia alle multinazionali.” 2001. Republished by ATTAC Italia, June 9, 2003.

Schilirò, Daniele. *The Sicilian Economy: Its Competitiveness, Structural Composition, and Evolution*. MPRA Paper No. 124717. Munich: Munich Personal RePEc Archive, 2025.

Stille, Alexander. *Excellent Cadavers: The Mafia and the Death of the First Italian Republic*. London: Vintage, 1996.

Tondo, Lorenzo. “The Exploitation of African Migrant Workers in Sicily’s Fields.” *The Guardian*, May 4, 2018.

Tondo, Lorenzo. “‘The water war’: how drought threatens survival of Sicily’s towns.” *The Guardian*, December 13, 2024.

Ward, John, and Peter Dillon. *Robust Design of Managed Aquifer Recharge Policy in Australia*. Canberra: CSIRO, 2009.

WasserStiftung. “Mount Boutmezguida.” www.wasserstiftung.de.

Wheaton, Rolland Z., and Edwin J. Monke. *Terracing as a “Best Management Practice” for Controlling Erosion and Protecting Water Quality*. West Lafayette, IN: Purdue University Cooperative Extension Service.

World Meteorological Organization. “WMO Confirms Verification of New Continental European Temperature Record.” January 30, 2024.

Zachariah, Mariam, et al. *Climate Change Key Driver of Extreme Drought in Water-Scarce Sicily and Sardinia*. London: World Weather Attribution, 2024.